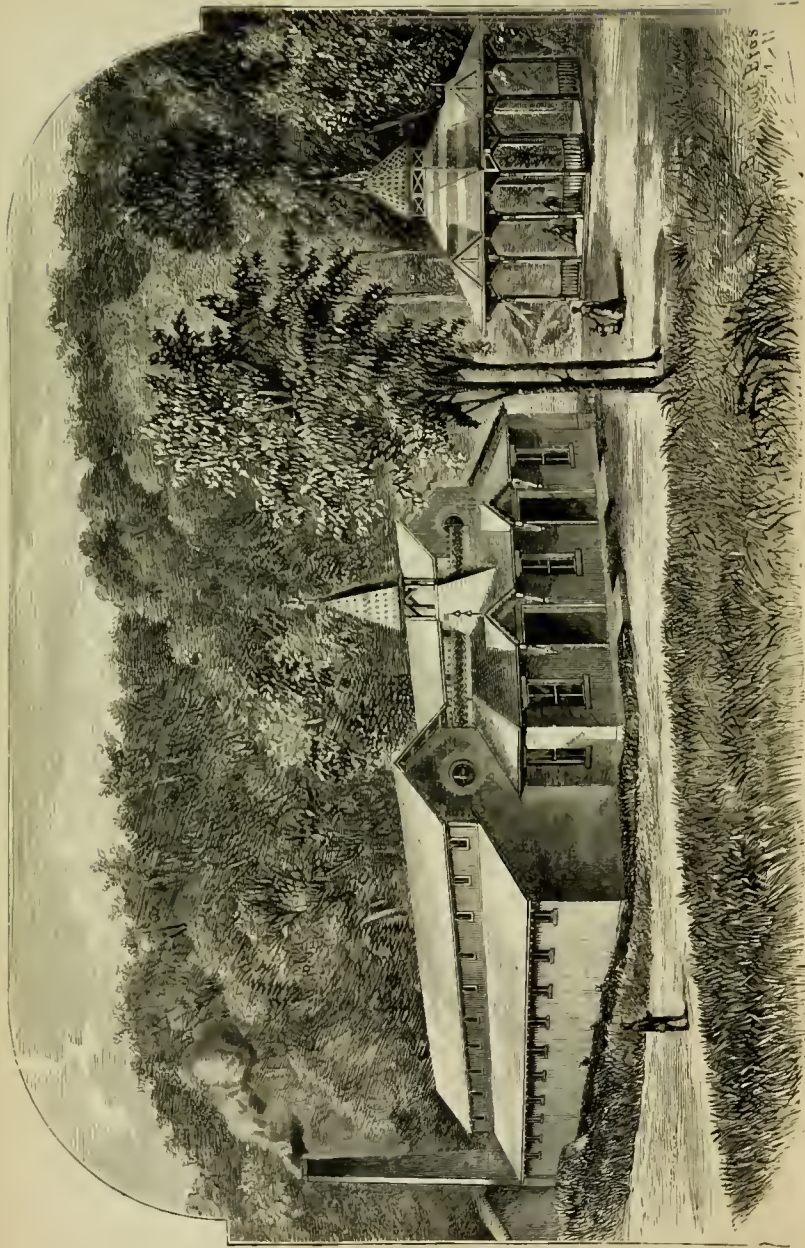


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SHARON SPRINGS.





SULPHUR BATH HOUSES AND SULPHUR SPRING, Sharon Springs, N. Y.

THE MINERAL SPRINGS

OF

SHARON,

SCHOHARIE COUNTY, N. Y.,

COMPRISING AN ACCOUNT OF THE SPRINGS, WITH
REMARKS ON THE NATURE AND MEDICAL
APPLICABILITY OF EACH.

BY

S. F. FONDA, M. D.,

FOR THE LAST TWENTY-FIVE YEARS RESIDENT PHYSICIAN

SECOND EDITION :

GREATLY ENLARGED, WITH VALUABLE INFORMATION TO INVALIDS.

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TO THE INVALIDS

WHO MAY RESORT TO THE VARIOUS MINERAL SPRINGS

OF

SHARON

THIS SECOND EDITION OF MY OBSERVATIONS ON THE SHARON
SPRINGS IS MOST RESPECTFULLY

DEDICATED,

WITH THE FOLLOWING REMARKS:

I have endeavored, in getting up the second edition of my volume, to adhere to the plain, unassuming, practical method, which was, I think, a characteristic distinction of the first, and perhaps its chief merit.

It was my earnest aim in the first edition, and has not been less so in this, to put into the hands of the invalid, a short and easy, but condensed and comprehensive account of the principal Mineral Waters of Sharon, and to indicate with all candor, and with as much plainness as possible, their nature and medical applicability.

Wherever I could do so to advantage, I have availed myself of the observations of others, and I claim at your hands this award of merit at least, of having honestly endeavored to make my little volume convenient and valuable to you; not by dazzling and futile theories, or by an attempt to create hopes that might end in sad disappointments, but by plain, practical facts in relation to the

nature and use of our mineral waters generally, and especially of those with which I have now had practical observations for nearly thirty years.

I intentionally avoided in my first edition, and in this, any criticism upon the improvement of Spring property, or the character of the accommodations at the Springs. Such criticism in a printed volume, intended for reference long after it issues from the press, would be likely to mislead, and probably do great injustice, inasmuch as improvements now very faulty may, before the next season, be made very comfortable, and bad hotel accommodations are often changed in a day, by a change of landlord or manager.

It is of the nature and medical applicability of our Mineral Waters that I have felt called upon to write; and this I have done without prejudice, fear or favor; having no interest, directly or indirectly, in any of the Springs, and influenced alone in my estimation of them, either from personal observation, or, when this has been wanting, from the most reliable information I could collect.

PREFACE.

For many years I have directed my especial and almost exclusive attention to an investigation of the nature and medical applicability of Mineral Waters. During the greater part of this time, I have resided at Sharon Springs, where, in the capacity of resident physician of that extensive Watering Place, I have enjoyed ample opportunities for witnessing the various and modified effects of this Water, in almost every variety of disease and state of the system.

Although my attention, during this time, has been especially directed to the investigation of the character of the Water of the White Sulphur, I have not neglected the other valuable Waters of Sharon, nor failed to mark and appreciate their various peculiarities, and relative and positive merits.

The main design of the present volume is to bring the Mineral Waters of Sharon Springs, as a therapeutical agent, in a condensed view, before the public; to state what is known of their applicability to disease; and to lay down some general rules for their administration; and, at the same time, to present such an account of their general character as to enable the public to appreciate their merits.

The position of the writer, while it has enabled him to witness the virtues of the Mineral Waters at Sharon, in disease, has, at the same time, enabled him to see that its good effects are not only often lost, but that consequences highly injurious sometimes result from its injudicious use.

So little has been written in reference to our valuable Mineral Waters, that it seems to be the duty of every one who may have had any experience with them, to contribute his mite. No other motive than a desire to offer to the public the little that experience has taught me in reference to them induces me to publish this volume. I regret that ill-health and many cares has delayed it so long.

I am not vain enough to suppose that none of my opinions are erroneous — to err is both human and common; but in the honest integrity with which they have been formed, the invalid and the public may rely.

THE AUTHOR.

Sharon Springs, 1876.

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SHARON SPRINGS.

CHAPTER I.

SHARON SPRINGS.

THE first thing the tourist wishes to ascertain, when making inquiry about visiting a Watering Place, is, the way to get there, the location and the general healthfulness, etc.; whether it is mountainous, wild, uncultivated, or low, marshy, uninhabited and unpleasant.

Sharon Springs is in Schoharie county, New York, near the lines of Montgomery and Otsego counties, in a healthy region, thickly inhabited with an enterprising, hardy and thriving people. The country is uneven, mountainous and picturesque, abounding in beautiful cascades and waterfalls. It has no marshes, no standing water or effluvia. Its scenery and landscape views are equal, if not finer, than any in the State. Never need an American look beyond his own country for the sublime and beautiful of natural scenery. Take New York city for the starting point, you go by

the Hudson River railroad to Albany, or by the beautiful Hudson river steamboats, one of the finest rivers in the known world, abounding in wild and beautiful scenery in its entire length; from Albany to Sharon Springs, by the way of Cobleskill, on the Albany and Susquehanna railroad, fifty-nine miles, or by the New York Central to Palatine Bridge, a distance of fifty-three miles, where fine carriages are in waiting to convey passengers to the Springs, the distance of nine miles, over a beautiful country, you approach the village of Sharon Springs by a romantic road, cut beside a highland ridge covered with dense and lofty forest. Below the road, and overshadowed by evergreen and deciduous trees, some of which are venerable for their age, runs a babbling stream. Passing over a bridge, by which is a mill, protected and half concealed in the embrace of the trees, you ascend to the level of the main street. On the left, twelve hundred feet above the Hudson river, stands the Pavilion, with its columns and outbuildings. Some five or six other hotels and some thirty or forty dwellings are on that street, and constitute the main portion of the village. This street, parallel with the stream, winds over the elevated grounds, at the foot of which issues the fountain. The stream runs along the base of the mountainous

ridge lying west of the main street, covered with a forest that is universally admired, and possessing in a high degree the elements of venerableness and grandeur. These woods afford extensive, varied and pleasant walks. A few Indian families, who here take up their summer residences, impart to the scene a forest wildness of other days. They employ their time in making baskets, fans and similar articles, which are sold to the visitors. At the base of this ridge, streams of clear, sparkling, Medicinal Waters boil up and gush out of the soil and rock, diffusing a sulphurous smell for some distance around. As they flow, they deposit on the rocks their sulphurous and magnesian combinations, forming a light yellowish incrustation, and where arrested by dams, they assume a milky blueness. The rocks cropping out of the side and at the base of the ridge appear to be sedimentary deposits of the waters. If the waters pass over moss or other vegetable growths, they incrust every fibre, leaf and branch, producing beautiful specimens of petrifications. These Springs are within the very shade of the forest. Walks of easy and varied grades lead at once into the midst of the primitive and undisturbed wilds. The lover of nature may sit and luxuriate, now in the stillness and grandeur, and now in the roar and strength of

the forest; or he may prolong his rambling, ascending the crooked pathways until he reaches an elevated clearing, whence he can look down on the Pavilion, and enjoy a prospect as extended as it is delightful. Woods and cultivated fields join on to woods, fields and orchards, until they are lost on the face of the distant mountains, which, rising in succession, blend their blueness with the clouds. The sight is cheering and healthful. How many ages have passed away in converting seemingly so large a portion of the stubborn forests of the earth into fruitful fields! Whence the giants that aided our fathers in labors so great? Breaking away from the enchanting scene, and continuing on, northerly through the woods, the visitor suddenly finds himself at the extreme end of the mountain, and there, from an observatory, not of human erection, is a scene that tasks all power of description. In addition to the easterly view, the eye looks away north and west over a chequered expanse, that stretches far where the Adirondack mountains commune with the clouds, and where the motherly queen of the British Isles claims sovereignty. As the eye comes back, it traces out the silvery course of the Mohawk, the pathways of its successful competitors, the great Erie canal and Central railroad, measures village with village, and marks with com-

placency the steeples rising here and there out of the rural neighborhoods. As the rambler sits feasting on the vision, the atmospheric agencies unite in adding new charms to the scene. The winds come with varied speed and power, and the trees and ripening fields gracefully wave their arms in deference and respectful gratitude. The shadows run over the landscape, in pursuit of the clouds, like pleasing dreams. The sun varies its silvering, gilding and bronzing processes, even trying the effects of streams of direct rays, and volumes of reflected light, and shade from clouds; and whether displeased with its attempts, or unwilling to translate the beholder from earth, it brushes away its gilding, draws its curtains of clouds, and retires.

Descending from the highland, you may extend your walk along the confines of the great basin of farm lands, and return up the ravine, following a path beside a restless brook, overshadowed by dense foliage. Thence you may turn toward the east, and ascend the eminence on which stands the Pavilion Hotel, a large and imposing structure, commanding a prospect on which the eye, never tiring, travels over field after field till the dividing lines are lost on the side of the mountains. For airiness from every point of the compass, for beauty,

richness and extent of rural scenery, this spacious summer retreat is surpassed by few from Maine to the Rocky Mountains. Strolling to the east, you enter other beautiful woods, held sacred from the woodman's axe probably during the years of the independence of these United States. Continuing south for a mile, you strike the turnpike road from Albany to the shores of Lake Erie, well known in the days of our fathers as the great western avenue of travel and trade. Its glory has departed; the canal and railroad have unhinged its toll-gates; the tens of thousands of fat cattle have deserted it for the more easy, rapid and modern mode of locomotion to the great slaughter-houses.

Wherever you direct your footsteps, you find variations in the scenery before and around you; in one minute you can leave the main street and plunge into the solemn forest. When you have taken your draught of the health-giving waters, in a moment you may return to the social and gay circle, or gain a solitude among the lofty and venerable trees whose leafy tops drink in all the rays the great sun can pour out; in a walk of a few minutes you may exchange a circumscribed vision for an extended and cheering landscape. In this respect there is a great contrast between Sharon and Saratoga; in the latter there is almost one level

sainenness. Art, however, has lent its aid, and here and there touched up the scene into the beautiful; to the former nature has been lavish of its rural gifts, but art has been dilatory and niggardly.

With a moiety of the outlay expended at Saratoga, Sharon would be considered one of the most lovely and romantic spots in our whole country; its capabilities are almost unlimited; a ride to Cherry Valley is buoyant and inspiring to the soul. Otsego lake, embosomed among lovely hills, celebrated for its salmon, trout and other fish as excellent in flavor as its waters are pure, is further south, but within a morning's airing; Cooperstown, looking northerly, commands a view of its whole nine miles. In whatever direction you walk or ride you meet with sources of enjoyment. Howe's wonderful Cave can be reached with comparatively little exertion; this whole region of country comprised the frontier settlements during the revolutionary war. Almost every rood of land has a tale of heroism, suffering, cruelty and blood. Visitors would be highly entertained by the reading of Simm's Border Wars of Schoharie County, a splendid work on the history of the settlement of the county and Indian depredations.

CHAPTER II.

MINERAL WATERS IN GENERAL — EARLY USE
OF, ETC.

MINERAL Waters rank among the ancient remedies used for the cure of disease. The Greeks, who in knowledge of medicine were superior to the nations who had preceded them, regarded natural medicated waters as a special boon of the Deity, and piously dedicated them to Hercules, the god of strength. They used them for drinking, and for general and topical bathing. Hippocrates was acquainted with the value and uses of various Mineral Waters, and many other Greek physicians, we are told, employed them for numerous diseases for which they are used at this day.

With the Romans, Mineral Waters were a familiar remedy, not only in Italy, but in all the countries over which that nation obtained dominion. Mineral Springs were eagerly sought out in all the countries over which that nation obtained dominion. Mineral Springs were eagerly sought out in the countries over which their conquests from time to time extended; and, prompted by

gratitude to the benefit which they experienced from their use, they decorated them with edifices, and each fount was placed under the protection of a tutelary deity. (Bell.)

Pliny, in his natural history, treats of various Mineral Waters and their uses; and it is a fact worthy to remark, that they were highly recommended by various Roman physicians in the fifth century, in the same diseases for which they are at this day so much employed, particularly for nervous and rheumatic diseases, and for derangements of the liver, stomach and skin.

With the modern nations of civilized Europe, Mineral Waters, both as internal and external remedies, have always been held in high estimation. The national regulations that have from time to time been adopted to investigate their virtues and their appropriate applicability, and to guard against their improper use, sufficiently manifest the importance that has been attached to them as remedial agents.

Henry IV, we are told, during his youth had frequented the Springs of the Pyrenees, and, witnessing the abuses in the employment of so useful a remedy, sought to correct them after his ascension to the throne of France. He nominated by edicts and letters, patent in 1603, superintendents

and superintendents-general, who were charged with the entire control over the use of Mineral Waters, Baths and Fountains of the kingdom. Most of the Mineral Springs and Bathing Establishments on the continent of Europe, are placed under a somewhat similar superintendence, and a resident physician is appointed by the government. (Bell.)

Although Mineral Waters had been favorite, remedial agents with the enlightened nations of the earth for many centuries, it was comparatively but recently that chemistry by minute analysis was able to determine with precision their constituent parts. In 1670 the Mineral Waters of France were first fully analyzed by a commission appointed by the Academy of Sciences at Paris; but it was not until 1766, nearly a hundred years afterward, that Bayen discovered the means of separating sulphur from sulphurous waters, nor until 1774 that the celebrated Borgamonn demonstrated the existence of sulphuretted hydrogen gas; meanwhile, physicians stationed at the several watering places were active in observing and noting the various operations of the different waters on the human system, and in determining, from experience, the various cases in which they were beneficial or injurious.

EXPERIENCE THE ONLY SURE GUIDE IN THE ADMINISTRATION, ETC.

After all that science can effect in determining the component parts of Mineral Waters, it is experience alone in their use that can be fully relied upon as to their specific effects, or applicability to particular diseases. Chemical analysis is important mainly as a matter of general scientific knowledge, and may be so far practically useful to the physician, as to enable him to form correct general views as relates to the nature and powers of the remedy ; but it is fallacious to suppose that an analysis, however perfect, can ever enable the physician, in the present state of our knowledge, and in the absence of practical observation, to prescribe a Mineral Water with confidence or safety. An accurate knowledge of the component parts of Mineral Waters might do much, I admit, to prevent the incessant mistakes and mischief which medical men commit in sending their patients "hap-hazard" to drink mineral waters, which are often unadapted to their cases, but it never can, in the absence of experimental knowledge, qualify them for giving specific and detailed directions for their use. Dr. John Bell, in his valuable work on Baths and Mineral Waters, has the following sensible and judicious passage upon this subject. "I wish not," he says, "to be

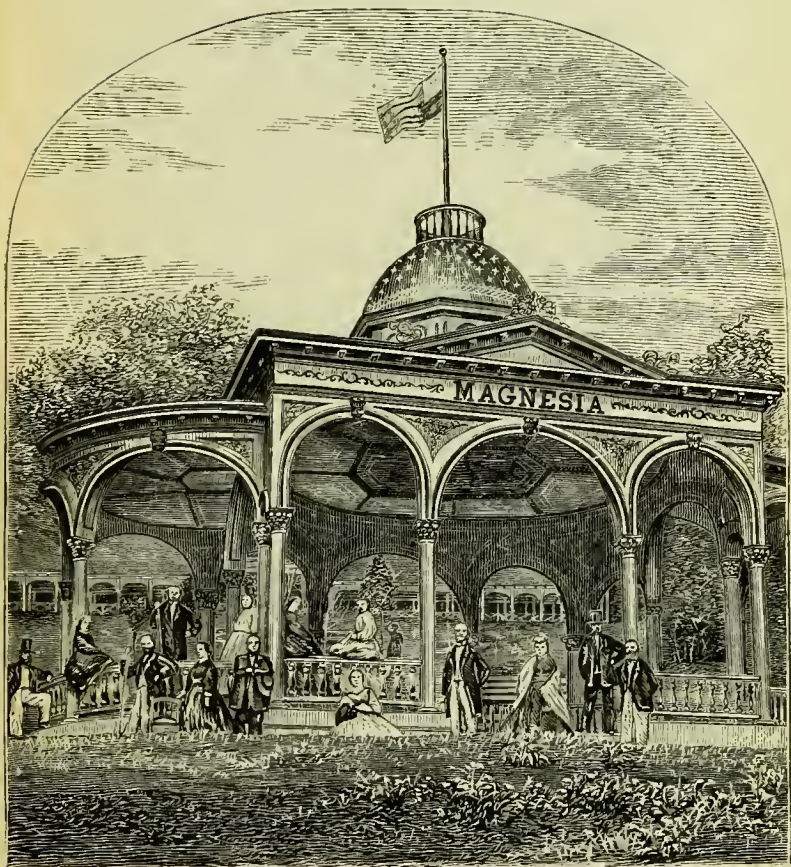
ranked among the chemical physicians who, having discovered the proportion of each foreign ingredient in the Mineral Spring, and studied its operation on the economy, pretend to determine the general effect of the compound. We may, indeed, by a knowledge of the constituent parts, predict to a certain extent the medicinal powers of the compound, but it is only by multiplied facts, that is, experience of its use, that we can speak positively of its virtues. In no other country, perhaps, do Mineral Waters abound in greater variety than in the United States, and it is a subject of sincere regret that their nature, applicability and proper method of administration should have been so little studied, both by physicians and the public at large. It is true that certain opinions generally prevail in enlightened circles, as regards the curative powers of some of our more celebrated fountains; and these opinions, so far as they go, being generally founded on experience, may, in the main, be tolerably correct. Nevertheless, there is a lamentable want of information generally; and even among our more enlightened physicians, as to the specific nature and adaptation of our Mineral Waters to particular diseases, information, that the want of which must always disqualify for the safe and confident recommendation of these valuable agents.

A perfect knowledge of the various influences and of the peculiar minute circumstances that control the use of Mineral Waters in different systems, as well as the best methods of using them in certain pathological conditions of the system, must, as with all other medicines, be learned from observation. Now, as physicians but rarely have an opportunity of observing the use of Mineral Waters for a sufficient length of time and in a sufficient variety of cases, and as but little has been written by those who have observed their effects, it ought not to be supposed that the medical public generally would be greatly enlightened on this subject.

I have said that the opinions generally in enlightened circles relative to the curative powers of our principal mineral fountains, being founded on experience, may, in the main, be correct; I would not be understood, however, as advising a reliance upon such popular fame. Information of this kind is sufficient to awaken attention and incite inquiry, but certainly should not be implicitly relied upon in individual cases. At best, it is generally "hearsay" opinion, made up, ordinarily, from partial and empirical sources, or, quite as likely, from the prejudiced accounts which are brought by visitors from the different watering places, and which are sweepingly favorable or prejudicial, as they may

chance to have been benefited or worsted, and that without reference to the specific action of the agent, or that clear understanding of the pathology of the case which would serve as a safe guide in its application to others.

Every physician knows how prone persons are to err in the use of medicines from the supposed resemblance of cases. Often am I pained to see persons persevering in the use of a Mineral Water to their evident prejudice, and for no better reason than that Mr. or Mrs. such-a-one was cured of a disease supposed to be similar; or by the general recommendation of some medical man who sent them to the mountains with a *carte blanche* to use some of the Mineral Waters. Occasionally it has become my painful duty to advise patients to retrace their melancholy steps homeward, without using any of the Waters, because none were adapted to their case. Mineral Waters are not a panacea; they act like all other medicines, by producing certain effects upon the animal economy, and upon principles capable of being clearly defined. It follows, that there are various diseases and states of the system to which they are not only not adapted, but in which they would be eminently injurious. Some years since, I was requested to visit a highly respectable gentleman, who had just arrived at Sha-



ron with his family from one of our distant cities. He was in wretched health, and sought my advice as to the applicability of the Water to his case. On examination I felt astonished that any medical man of intelligence should have recommended such a case to Mineral Waters for relief. I advised the gentleman to retrace his steps homeward, and put himself under medical treatment, as he had no time to lose. Accordingly, the ensuing morning, he recommenced his journey of seven hundred miles to reach his home. Medicine did for him what Mineral Waters were not calculated to do, and I have since heard of his entire recovery. This gentleman informed me that he had been influenced to undertake the distant and, to him, painful journey by a physician who had never before prescribed for his case, and who candidly stated to him that he knew but little of the Mineral Waters of Sharon, but he had heard of many cures from their use, and therefore advised that he should hasten to give them a trial. Influenced by this medical opinion, the unfortunate invalid had dragged himself and his family seven hundred miles under the vain hope of finding a remedy, which the physician should, in such a case, have found in his own office. Now a little more knowledge of the nature of our Mineral Waters, and a more commendable caution

in advising their use would have prevented the heavy sacrifice this gentleman incurred. Nor is this by any means an isolated instance; my case-book furnishes me with many others equally strong, that have come under my observation within the last few years.

MEDICAL EFFICACY, ETC.

Mineral Waters are exceedingly valuable as medicinal agents; are applicable to a large circle of cases, and will, unquestionably, cure many which the ordinary remedies of the shops will not. Nevertheless it should always be borne in mind that they are not a catholicon; that they are not to be used for every disease; and that to be prescribed successfully they must, like all other medicines, be prescribed with reference to the nature and pathology of the case.

Nor is this caution, ordinarily, more necessary in using the various medicines of the shops than in using our more potent Mineral Waters. Some there are, I know, who profess to be unbelievers in the medicinal activity of Mineral Waters, and who, without denying the benefit that is often derived from visiting such fountains, attribute the whole to travel, change of air, exercise, relaxation from business, etc., etc. Now I freely admit that these are often important agents in the cure of a large

class of cases, but from long experience at a popular Watering Place, and the numerous cures I have seen effected from the water itself, totally disconnected with any of the adjuncts alluded to, it would be quite as easy to convince me that bark is not tonic, that jalap does not purge, or that mercury will not salivate, as that Mineral Waters may not be an active and potent means of curing diseases, entirely independent of the valuable adjuvants that have been alluded to. The advocates of the non-efficacy of Mineral Waters, *per se*, would scarcely persist in this opinion after seeing the large amount of active medical material obtained by evaporation from some of our more active waters. The White Sulphur, for instance, which yields more than one hundred and sixty grains to the gallon, and which, upon analysis, is found to consist of chlorine, sulphur, the various combinations of soda, magnesia, and other active ingredients. Would it not be absurd to believe that so large an amount of these efficient medical substances as is usually taken into the stomach by those who drink Mineral Waters in which they abound could fail to exert a positive influence upon the economy? My own experience for many years in the use of such waters enables me to bear the most unequivocal testimony as to the direct and positive influence of many of them

upon the human body. In the language of the celebrated Potissier, I can unhesitatingly say that in the general, Mineral Waters revive the languishing circulation, give a new direction to the vital energies, re-establish the perspiratory action of the skin, bring back to their physiological type the vitiated or suppressed secretions, provoke salutary evacuations, either by urine or stool, or by transpiration; they bring about in the animal economy an intimate transmutation — a profound change; they saturate the sick body. How many sick persons, abandoned by their physicians, have found health at Mineral Springs? How many individuals, exhausted by violent disease, have recovered, by a journey to Mineral Waters, their tone, mobility and energy, to restore which attempts in other ways might have been made with less certitude of success, and hence most cordially do I adopt the sentiments of the distinguished Dr. Armstrong who, in speaking of the medicinal efficacy of Mineral Waters, says: "I dare pledge my word that if they be only fully and fairly tried they will be found among the most powerful agents which have ever been brought to the relief of human maladies."

MODUS OPERANDI, ETC.

Various attempts have been made to account for the peculiar effects of mineral waters upon the system. They seem to act, in the first place, as a simple hygienic agent ; secondly, they act in accordance with their constituent ingredients, specifically on the animal economy. Mineral Waters exert their more important influences upon the human body upon a different principle from many of the articles of the *materia medica* ; they are evidently absorbed, enter into the circulation, and change the consistence, as well as the composition of the fluids ; they course through the system, and apply the medical materials which they hold in solution, in the most minute form of subdivision that can be conceived of, to the diseased surfaces and tissues ; they reach and search the most minute ramifications of the capillaries and remove the morbid condition of those vessels which are so commonly the primary seats of disease. It is thus that they relieve chronic disordered action and impart natural energy and elasticity to vessels that have been distended either by inflammation or congestion, while they communicate an energy to the muscular fibre and to the animal tissues generally, which is not witnessed from the administration of ordinary remedies.

Many of the articles of the *materia medica* seem to act by sympathy and counter-irritation, and to cure one organ of the body by irritating another; thus calomel, by irritating the stomach and duodenum, is made to act efficiently upon the liver, to which organ it has a strong specific tendency. Not so, however, with Mineral Waters successfully used in any case in which they kept up a considerable irritation upon any of the organs of the body.

Both physician and patients are quite too much in the habit of looking to the immediate and sensible operations of Mineral Waters, and of judging of their efficacy from such effects. In most cases, it is serviceable for such agents to open the bowels gently; and in some it is best for them to purge actively. Occasionally advantage is derived from promoting an increased flow of urine, or perspiration, but, as a general rule, the greatest good is derived from the absorption of the water, resulting in that profound change spoken of by Potissier, or in other words, the alterative action of the remedy. It should always be borne in mind that this profound change — this alterative effect — is incompatible with constant or active action of the water upon any of the emunctories. This unquestionably is true as relates to the White Sulphur Water, with which I am most familiar, and I believe it to be so

with all alterative waters. So well convinced am I that the alterative action is the real curative action effected by Sulphur Waters, in nine cases out of ten, where any serious disease exists, that, ordinarily, I am not solicitous to obtain much daily increase of evacuation from any of the emunctories. On the contrary, I often find great advantage from the administration of some appropriate means to prevent the too-free action of the water, especially on the bowels and kidneys. As a general rule, it is far better that such waters should lie quietly upon the system, without manifesting much excitement upon any of the organs, and producing, at most, but a small increase in the quantity of the ordinary healthy evacuations.

The quality or kind of evacuations produced by Mineral Waters is a matter of far more importance, and, when strong Sulphur Waters are used, never fail to evidence the existence and the extent to which alterative action is going on in the system, and to this, persons using such waters should always pay a careful attention. I have said that the best effects of Mineral Waters are their alterative or changing effects, and that, in the administration of the White Sulphur Water, I do not, ordinarily, desire to provoke much increase of the natural evacuations. I do not wish, however, to be under-

stood, by this general declaration, as laying down an absolute rule of practice to govern all cases. The administration of this water, like the administration of every other active remedy, should be governed in reference to the particular character and demands of each case; and in such discriminating practice it will sometimes be found best to use it in a manner to produce active operations for a short time. I have, indeed, generally found that those who are actively purged by Mineral Waters, if they have strength to bear it, will be best satisfied with the remedy at the time, and, in fact, are apt to feel better at the time than those upon whom the water is exerting but little or no purgative effect. It may be laid down as a general fact in the use of the White Sulphur Water, subject to but few exceptions, that those on whose bowels it acts freely will feel best while at the Springs; while those who are but little purged will feel best after they have left the Springs, and will, ordinarily, enjoy the most permanent advantage. The reason of this is obvious; in the first case, the active purgation throws off the gross humors of the body, and the patient feels promptly relieved; in the other case, the remedy lies upon the system, is absorbed, and gradually produces its changing influences — bringing the vari-

ous secretory functions into a healthy condition; unloading and cleansing the machinery of the economy; silently putting its works to rights, and giving them their natural and healthy motion. All this requires time for its accomplishment; and hence we often hear persons say, I was no better while at the Springs, but I began to mend soon after I left, and have continued better since. Declarations of this kind I hear every day, by persons who have previously visited the Springs, and they verify the correctness of my proposition.

LENGTH OF TIME TO BE USED, ETC.

To acute diseases, Mineral Waters are not adapted; for all such they are too exciting, too prone to increase the activity of the circulation, and to stimulate the general system. It is in chronic diseases only that they are found so eminently serviceable. By chronic diseases, I mean those slow diseases of the system, uniformly attended either with simple excitement, chronic inflammation, or chronic congestion of the blood-vessels. To be permanently beneficial in diseases of this description, the use of Mineral Waters, like the disease for which they are taken, should be chronic. I mean an instantaneous cure should not be expected; but that the remedy should be persisted in, and the cure gradually

brought about. Sulphur Waters may be easily brought into disrepute by short and imperfect trials of them. To prove effectual, they should, for the most part, be continued daily, in sufficient quantity, until the disease gives way, or until their inefficacy has been fairly proven by an unremitted perseverance. In some cases of ophthalmia, of rheumatism, and slight cutaneous affections, I have known them to effect a cure in two or three weeks, while in other cases, apparently similar in all respects, twice, thrice, or even four times that period has elapsed before the cure had been accomplished; and what is here affirmed of these external affections, is still more strongly applicable to internal diseases, which are seldom speedily overcome by these waters, how completely soever they may yield at last. In illustration of this point, as to internal diseases, it may be mentioned that I have seen both chronic inflammation of the liver and chronic inflammation of the rectum, where no benefit was produced for three or four weeks, and yet a continuation of the waters for six or eight weeks longer has effaced every vestige of the morbid indications for which they were prescribed.

ARMSTRONG ON SULPHUR WATERS.

There is no greater folly in the use of Mineral Waters than that of laying down a definite period of time for which they should be used, without reference to their effects upon the system. Like all other medicines, Mineral Waters should be used, discontinued, or modified in their use, with a strict regard to other aberrations upon the body, and to their good or bad effects upon the disease. Whenever prescribed, their operations should be watched with the same care with which we watch the effects of any other medicine, and they should be persevered in, or temporarily or permanently discontinued, or controlled in their action by some appropriate adjuvant, according to the indications presented in each case. It will occur to every reflecting mind that the expectation of being cured, or even essentially benefited, in an obstinate chronic disease, from a few days' use of any Mineral Water, is altogether unreasonable. Nevertheless, I have often seen persons at watering places despairing of the efficacy of the water, simply because it had not produced an obvious and appreciable benefit in five or six days. A sort of stereotyped opinion, indeed, prevails with numerous visitors to such places, that two weeks is all that is required. I scarcely need say

that this is a most erroneous opinion, and often interposes between the patient and his recovery, instances of which I almost daily see at the White Sulphur at Sharon. It is true that some who hold the unwarrantable opinion alluded to, perseveringly endeavor to drink as much in two weeks as they should do in six, but this only serves, in a common way, to make them abandon it four or five days before their prescribed time, by absolutely disqualifying the system for its reception at all. I can say, as the result of many years' observation, that the White Sulphur, which is one of the strongest Sulphur Waters in the world, rarely produces its full alterative effects within two weeks, under its most judicious administration, and under favorable circumstances for its use; and that three, four, five, and even eight weeks often elapse before it has displayed its full remedial powers in obstinate cases.

GENERAL REMARKS ON THE ADMINISTRATION, ETC.

Mineral Waters are all stimulants, in a greater or less degree, and some have attributed much of their virtue to this property. Such an opinion, however, is clearly erroneous. I have already remarked that such waters are rarely serviceable when they keep up any considerable irritation of an organ. I now remark that any considerable excitement of the

general organism is equally prejudicial ; indeed, I have often been embarrassed and sometimes thwarted in the successful use of Mineral Waters from the prevalence of this quality. The amount of excitement resulting from the use of such waters depends upon the nature of their constituent principles, upon the quantity taken, the manner of taking it, and the excitability of each individual's constitution. If it be a water abounding in sulphuretted hydrogen gas, the most essential difference exists in taking it with or without its gas ; that is, in taking it fresh at the spring, or after its gas has flown off. In the use of the White Sulphur Water, with or without its gas, the most marked difference exists in its stimulating quality. In relation to this particular water it is greatly advantageous in many cases, particularly in very excitable persons, to have the gas expelled in part, or in whole, before using it. Some Mineral Waters, by varying the method of their administration, or by the interposition of appropriate adjuvants, are capable of extensive and valuable modified actions and effects upon the human body. The White Sulphur is susceptible of as many varied, different and modified actions upon the system generally and upon its particular organs, by varying the methods of using it, as is mercury, or antimony, or

any of our leading therapeutical agents. For instance, it can be so used as to stimulate distressingly, or without any appreciable stimulating effect. It can be so given as almost invariably to purge actively, or without lessening the quantity producing such effect, but merely by changing the time and manner of taking it, it can be so given as to exert little or no cathartic operation. It may be directed to or restrained from the kidneys or skin, and what, in a general way, is far more important, it can be so used as to lie quietly on the system, producing no great but sure progress, going on breaking up the obstructions in the glandular organs and removing the impediments to the proper discharge of their functions, equalizing the circulation, removing chronic inflammation, and generally restoring the energies of the system.

Between the action of mercury and the more powerful of the Sulphur Waters on the organic system the most striking similarity exists. Dr. Armstrong long since remarked the resemblance between mercury and the Sulphur Waters of Europe, and confidently expressed the opinion, that the latter are equally powerful as the former in their action upon the secretory organs, and with this very important difference, that while the long-continued use of mercury in chronic disease generally breaks

up the strength, that of the Sulphur Waters generally renovates the whole system. Mercury has heretofore, by common consent, been regarded as the most powerful alterative we possess. I am not prepared to dispute this high claim of the medicine, but this much I will assert, as a matter of professional experience, that Sulphur Water in my hands has proved an alterative quite as certain in its effects as mercury, though somewhat slower in its operations. Not only so, I believe it to be far better adapted than mercury to a large circle of cases in which glandular obstructions and chronic inflammations are to be subdued. If the claims of the two remedies for preference were otherwise nearly equal, the great advantage on the score of safety from the Sulphur Water would give it an immense preference over its rival. Numerous cases present themselves, however, in which they are used in conjunction to great advantage. Where this becomes necessary, however, I have, as a general rule of practice, found it best not to continue the mercury longer than six or eight days, nor is it often necessary to use it continually during that period. The effects of the White Sulphur Water upon the human body resemble mercury in several respects. Not to mention others, its resemblance is strikingly manifest from the fact of its producing

salivation under certain peculiar circumstances. Another marked similarity may be mentioned, especially as it has a direct bearing upon the proper method of its administration. I allude to the existence of a phlogistic diathesis in individuals with whom either remedy is used. When the system resists the specific action of mercury it is a certain test that the inflammatory diathesis prevails to a considerable extent, and this is the cause of the resistance, for lessening the inflammatory diathesis by proper evacuations and the specific action of the mercury will be readily induced. The system often offers the same resistance to the successful use of this water, which is evidently occasioned by the excess of the inflammatory diathesis, inasmuch as when the inflammatory disposition is abated by the lancet, purgatives, etc., the water promptly produces its wanted good effects. In the administration of the White Sulphur Water it is of the utmost consequence to keep this practical fact constantly in view, and by proper treatment to keep down both general and local excitement.

Notwithstanding Mineral Waters are so well adapted to the cure of chronic diseases it should not be expected that they will be uniformly successful, for it must be remembered that such diseases are only remediable when unconnected with

alterations of organic tissue, which is their ultimate and mortal product. Nor is it reasonable to expect that any plan of treatment will succeed in all cases of chronic disease unconnected with alteration of tissue, and I have accordingly found the methods recommended at times ineffectual, even when they were tried under circumstances which simply indicated disorder of the function, without any concomitant sign of disorganization.

ERRORS AND ABUSE OF MINERAL WATERS.

I have before alluded to some of the abuses of Mineral Waters by those who resort to them for relief. This subject, I conceive, may be still further pursued with profit to my readers. To one familiar with the many errors and mistakes committed in the use of Mineral Waters in this country, it is not wonderful that numbers return from visiting our most celebrated Watering Places without having received any essential benefit; it is rather a matter of surprise that so large an amount of good is achieved. The precautions in the use of such waters, deemed indispensable in France, Germany and England, are greatly neglected here. There, the advice of a competent physician, who is well acquainted with the nature and peculiarities of the water, is thought so important that persons rarely

enter upon their use without such advice, and at some places are actually not permitted to do so. If similar precautions were more commonly adopted by visitors at our various watering places, a far larger amount of good would be achieved to the afflicted, much injury prevented, and the character of the several waters better established and preserved. It is a subject of daily and painful observation at all our principal Watering Places, to witness numerous individuals using Mineral Waters that are not adapted to their cases; and still more common is it to see those, to whose cases they are adapted, using them so improperly as entirely to prevent the good they would accomplish under a proper administration. Professor Mutter, of Philadelphia, makes the following judicious remarks when speaking of the use and abuse of Mineral Waters in this country: Like every other remedy of any efficacy, Mineral Waters are liable to abuse, and it is really astonishing that such glaring errors should be daily committed, not only by the patients, but often by the physicians who recommend their employment. It is by no means an uncommon occurrence (and those who have visited the Springs of our country will bear me out in the statement I am about to make) for an individual to arrive, furnished with a *carte blanche* from a

physician who has probably little or no knowledge of the active properties of the agent he recommends, to use the water as he may see fit, or with merely a charge to use it with caution. Others are sent without any direction whatever, in the hope that the water may suit their condition, and come, trusting in Providence alone. Others again arrive with written instructions to drink so many glasses of the water *per diem*, whether it agrees with them or not. Many patients do not take the advice of a physician at all, but, relying on the representations of those who have derived benefit, imagine that they, too, will be cured, although in all probability, from the nature of their disease, the water may be the most prejudicial to which they could resort. Used in this careless and dangerous manner, is it to be wondered at that so many individuals leave the Springs either not at all benefited, or in a worse condition than when they arrive? The regulations which are thought necessary, and which are adopted in most European countries, especially France and Germany, during the use of a Mineral Water, are either unknown or neglected in this. There, nearly every Spring has a physician who is acquainted with the character of the water, whose duty it is to take charge of the sick as they arrive; here, with but one or two exceptions, those who

frequent our Watering Places have to rely on chance for medical aid. Is this as it should be? A vague impression seems to pervade the public mind that Mineral Waters, as medicinal agents, are totally unlike all other medicines, and that, in their administration, there is no necessity for observing any cautions, or for adopting extraneous expedients to procure the best effects of the agent employed. This is an error as injurious as it is common, and ought to be corrected in the public mind. Our more potent Mineral Waters ought indeed to be regularly incorporated into our *materia medica*, their several qualities properly defined, and the medical mind thus instructed to regard them not only as valuable therapeutical agents *per se*, but as agents capable of extensive and valuable modifications in their application to disease. A pathological practice should be established in relation to them, not less strict than in relation to the ordinary remedies of the shops, and the best means of influencing their sanative operations on the system understood. The physician who desires to throw his patient under the alterative influence of mercury is not so discouraged as to abandon the remedy if it chance at first to run off by the bowels, and thus thwart his object; but either by changing the method of using his medicine, or by uniting with it some

soothing astringent, he ultimately effects the important object in view. Neither should the physician be discouraged in the use of a Mineral Water because it occasionally manifests a vagrant and improper effect, for facilities can be commanded to control its operations as readily as we can control the improper operations of mercury. Such facilities may generally be found either in an increase or diminution of the quantity taken, an alteration of the periods at which it has been taken, or in the manner of using it (where gases prevail), in relation to its gaseous or ungaseous form. Occasionally medical adjuvants are found necessary, and then I have been in the habit of using those most simple, and which least derange the animal economy. As a general rule, I have found Mineral Waters most serviceable in those cases in which the stomach and general system tolerated them readily; yet such toleration depends so much upon the proper preparation of the system, and the manner of using the water, that the patient should by no means infer that it is unsuited to his case, simply because it has manifested some improper operation in the commencement; for, as before intimated, it will often happen that, by changing the method of using the water, or by the administration of some appropriate adjuvant, the difficulty will all be re-

moved, and the agent afterward act most pleasantly and profitably upon the system.

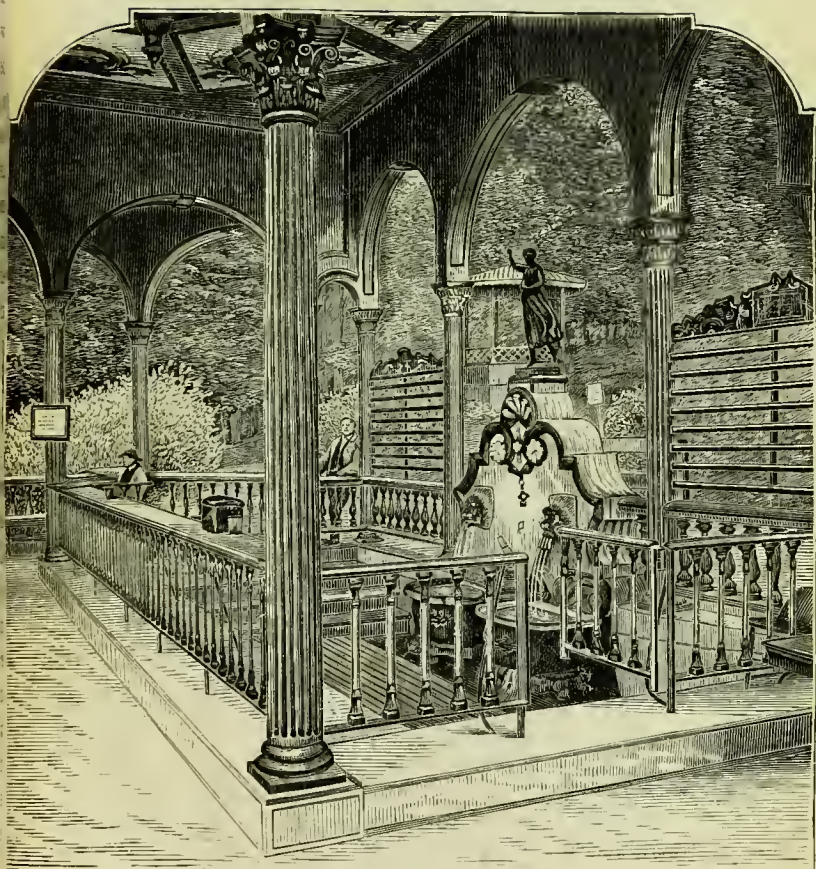
ACTION OF MINERAL WATERS.

Many, and in this country, perhaps the majority, of visitors at the Springs journey thither, not because of any specific malady with which they are afflicted, but to obtain relief and rest from the harassing cares of business, or the not less exacting demands of society. They go there for diversion; they wish to leave for a time the dusty and traveled highway of life, and wander in the shaded by-paths. After a month or two passed at the Springs, they return home refreshed and recuperated, possessed of a vigor they may not have known for years. Have the Mineral Waters produced this effect? No, the same renewal of life would have resulted, had they sojourned anywhere amid pure air, beautiful scenery, and cheerful society.

The influences which thus proved restorative to those who are not the subject of disease, also contribute to the cure of those who are really sick. But, from acknowledging that change of air, scene, and exercise, take part in the salutary result in disease, we are apt to overleap this legitimate conclusion, and deny that spring water has had any agency in benefits that have accrued. Nothing

could be more unwise, and nothing more inconsistent with facts, and the testimony of those who are regarded as the best authority in the practice of medicine. The history of bathing-resorts shows that Mineral Waters have been held in high esteem as remedies, both by the civilized and uncivilized of every age. Are we to regard this as a mere whim of humanity, and affirm that in all past time they have but pursued a phantom? No, it is our duty to investigate the question. Undoubtedly there is an atmosphere of quackery surrounding springs in this country, which is exceedingly repulsive to the scientific physician. The cure-all style of advertisement, pursued by many proprietors of springs, has contributed largely to bring odium upon Mineral Waters. Hopeless invalids have been induced to take long journeys to springs in no way adapted to their disease. Our obligations, however, are only increased by these abuses, and we should be prepared to give the sick reliable information. In the study of Mineral Waters it is difficult to eliminate the causes which contribute to the cure of the patient. The well-known disease, asthma, is an illustration of this fact. A physician, who is the subject of this harassing complaint, tells us that when he leaves the city he is relieved of the oppression which he continually experiences, but,

on his return, it again fixes itself upon him. If atmospheric conditions have so great an influence in a disease which forms so clear an index, how many diseases are there, not so manifestly affected by these changes, but which are nevertheless in a great degree under their influence. We do not speak of pure and impure air as usually considered, but also of the many shades of difference produced by various kinds of vegetations, by exhalations from forests, by vapors from rivers and seas, and by the tenuity of the atmosphere at different heights above the surface of the earth. The extent to which vegetative exhalations pervade the atmosphere are clearly appreciated as we near the shores of America in spring-time, after a transatlantic voyage. Long before land is in sight, the fragrance of woods and flowers is so strong, that we can imagine ourselves within the precinct of a well-kept garden in full bloom. On the other hand, as we approach the sea-shore from inland, we can plainly detect the odor of salt-water long before the ocean is in view. The influence of mountain air in disease has never been closely studied. That it is peculiarly tonic and bracing, and purer than the air at lower levels, is undoubted; but, at the limited elevation of resorts in this country, the difference in density can have no appreciable effect



In Europe there is a tendency to regard great altitudes as favorable for consumptives, and persons affected with this disease are recommended to choose winter residences at elevations from two to five thousand feet above the level of the sea, care being taken, however, that the climate of such places is dry, and the sky bright and cheerful. They doubtless attain in this way the same object which we do in sending consumptives in the early stages to Minnesota.

Change of scene is another agency in the cure of certain diseases, which renders it difficult to estimate the actual influence of Mineral Waters.

Those who are well experience a lightness and buoyancy of spirit, a positive rest and recreation, when they exchange the monotonous routine of business for the always varying views of a pleasure-tour.

How far the diseases of the hypochondriacal, the melancholic, and the overtasked, are favorably influenced by the journey to a summer resort, and the mirthful society congregated there, it is impossible to determine. But these auxiliaries of Mineral Water treatment will never modify or eradicate the gouty or rheumatic diathesis; they will not arrest the formation of gall-stones; they will not cure

catarrh of the bladder, or relieve diabetes, all of which the waters themselves will do.

It is objected by some that when a Mineral Water is advised, we do not know exactly what was prescribed. In reply, it is only necessary to refer to the fact that all our remedies — of organic origin — are compound drugs of multiple ingredients, many of the constituents being unknown. Especially is this true, at the present day, of asafoetida, castor and valerian; and yet we employ these medicines without hesitation. Previous to the present century the active principle of no vegetable drug was known, and yet many of them were used as skillfully as to-day. Opium was introduced into practice, and its value defined by men who knew nothing of morphia, narcotine, codeia, thebaine, narceine, meconine, and meconic acid, its principal chemical constituents. Far be it from me to decry the value of these discoveries; let it only be remembered that there was a time when medical men knew nothing of them, and yet the virtue of the drug was the same as to-day. So, in the case of Mineral Waters, we may not be able to discover their exact ingredients, or decide the action of so many chemicals in one solution; but we should not, on this account, refuse to employ them, if reliable evidence of their efficacy can be adduced.

In the study of Mineral Waters, artificial preparations will not be considered. They may serve a good purpose in some instances, but, as a rule, they bear little resemblance to the natural waters. They are usually pleasant carbonated drinks, with a proportion of alkalies, iron or epsom salts, according as these ingredients may predominate in the water of the spring which they are supposed to represent. Chemists do not claim absolute accuracy for their analyses of waters; the combination of the elements is always empirical. How then, even when the most scrupulous adhesion to details is observed (which seldom, or never occurs), can manufacturers of these preparations produce an imitation identical in action with the spring water? Water is the most important inorganic constituent of the body, it forms two-thirds of its substance, and is in more or less intimate combination with every organ, bone, or tissue. Chemically speaking, we are only so much water in combination with varied proportions of carbon, oxygen, hydrogen, nitrogen, carbonate of soda, etc. It is, however, an exceedingly mobile constituent; it is continually discharged from the body, and continually renewed, so that, while any given tissue or organ of the body maintains about the same proportion, it does not for any length of time retain the same particles of water.

When water is taken into the stomach, it enters the circulation immediately. It is first absorbed by the gastric veins, and thence passes directly to the portal vein, and this blood-vessel usually contains more water than any other. Certain conditions of the water, however, regulate the rapidity of this absorption. If an immoderate quantity is taken at once, a sensation of weight is produced, the absorbents are gorged by the excess of water, endosmosis is almost prevented, and the process proceeds but slowly. Again, the temperature of water influences its digestion. Water much warmer, or considerable cooler than the blood, readily penetrates the absorbents, while, if exactly the same temperature, it produces nausea, and is frequently rejected.

If, however, the temperature verges on the extreme in either direction, the water is not tolerated, for then the vitality of the mucous membrane is imperiled. When water entering the stomach is highly charged with mineral salts, it is absorbed but slowly. When ordinary drinking water is taken in large quantities, it acts principally as a diuretic. It largely increases the amount of urine discharged, and the quantity of urea, phosphates, sulphates, and chlorides, is also augmented. If the temperature of the air is somewhat elevated, the water also

acts as a diaphoretic. It seldom passes off by the intestines. These effects pertain to all kinds of water taken in large quantities, and are not peculiar to Mineral Waters, as is often imagined. Prof. Liebig tells us, "if a tumbler of about four ounces of ordinary water, which is poorer in salines than the blood, is taken every ten minutes before breakfast, a quantity of colored urine will be discharged after the second tumbler, which nearly corresponds to the quantity of water taken in the first tumbler; and if twenty tumblers are taken one after another, there may be nineteen discharges of urine, which at last becomes almost colorless, and then contains hardly more salines than the water which was drunk."

A familiar illustration of the rapidity of the absorption and elimination of water is found in the tippler's ready method of sobering himself after taking too much wine. He goes to the nearest fountain and drinks one or two quarts of water; it enters the blood immediately, dilutes the alcohol there and passes off freely by the kidneys, removing the alcohol with it, so that in ten minutes the man is perfectly sober. It has been observed by Dr. Genth that if large quantities of water are taken in twenty-four hours (four thousand cubic centimetres), the temperature of the body falls,

the pulse becomes slower, and the number of inspirations per minute are diminished.* The temperature of water drank also bears a relation to its action on the system as well as its absorption; thus cold water increases the peristaltic motion of the stomach and intestines, while hot water does not produce this effect. For this reason certain Mineral Waters may purge when taken cold but will not do so when hot.

Mosler, who instituted a series of experiments relative to the action of water, found a difference of action at different ages. The effects were more decided and lasting in children than in adults. If water was administered for a considerable time, the metamorphosis of tissue proceeded much more rapidly in persons of feeble constitution than in the vigorous. He also found that in those instances in which the appetite was indulged, for it was usually increased, the waste of tissue was compensated, and the person did not lose in weight. In some cases the action of the water was more diaphoretic than diuretic. The action of Mineral Waters may be divided into the immediate and the remote.

The immediate action is that which results within

* Althaus' Spas of Europe, p. 161.

twenty-four hours after it is taken. It may present as a stimulant, sedative or eliminant, according to the constitution of the water. The first impression of a Mineral Water is that which is exercised upon the stomach. Waters, cold in temperature, containing considerable carbonic acid gas and alkaline in constitution, will prove sedative, both to that organ and the arterial system, while hot Waters, and those highly charged with sulphuretted hydrogen, will prove stimulant. Certain Sulphur Waters, containing considerable organic matter, are decidedly sedative in action, reducing the frequency of the pulse. The eliminant action results from the effect of the waters on the intestines, kidneys and skin. Waters containing chloride of sodium, sulphate of soda, or sulphate of magnesia, in large proportion, act readily on the intestines. The alkaline and calcic waters prove diuretic, some of them stimulating the kidneys in a marked manner. Certain waters are cathartic or diuretic, according to the mode of administration. Thus, a water containing a comparatively small amount of purgative salts, with other constituents, such as sulphate of lime and carbonates, will prove actively cathartic if taken in doses of two or three glasses before breakfast; but if the same quantity be equally distributed

through the day in small portions, it will produce a copious flow of urine, while the intestines will be unaffected. Although pure water, when taken in large quantities, tends to produce diaphoresis, yet there are some Mineral Waters that affect the integumentary excretories in a marked degree. Such are the Sulphur Waters. This action is promoted if the temperature of the surrounding atmosphere is high, and retarded if it is low.

Mineral Waters also produce stimulation or sedation when applied externally. The results obtained in this way depend more on the temperature of the water than any action it possesses as a medicated agent. However, it is undoubted that water containing a large proportion of carbonic acid gas is thereby rendered directly stimulant to the skin, and waters highly impregnated with organic constituents, those that are unctuous or oleaginous in texture, prove sedative. The remote action of a Mineral Water is its alterative effect, and this, in the majority of diseases, is by far the most important quality. Alteratives are medicines which, in appropriate doses, modify the nutrition of the body without producing any antecedent phenomena.* This is precisely the

* Stille's Therapeutics and Materia Medica, 1864, p. 629.

result obtained by the long-continued use of Mineral Waters in moderate doses. How this occurs is readily understood when we consider the constitution of the body. As has been before stated, we are only so much water in combination with varied proportions of carbon, oxygen, hydrogen, nitrogen, chloride of sodium, phosphate of lime, carbonate of lime, carbonate of soda, etc. The water thus combined may be termed the water of constitution, answering the same purpose in maintaining the body in form that the water of crystallization does in continuing a crystal in its integrity. But although the amount of the water in the body is about the same, it is continually being replaced, a portion being discharged and a corresponding portion received. For the ordinary purposes of quenching thirst, we imbibe waters containing a very minute quantity of mineral ingredients; but when we repair to a mineral fountain for the cure of disease, we drink freely of water containing double, treble, quadruple and even a hundred times the quantity and number of chemical constituents. The water thus introduced slowly and regularly penetrates every blood vessel, capillary and tissue of the bodily structure, gradually replacing the water of constitution, and by its different chemical affinities changing the mole-

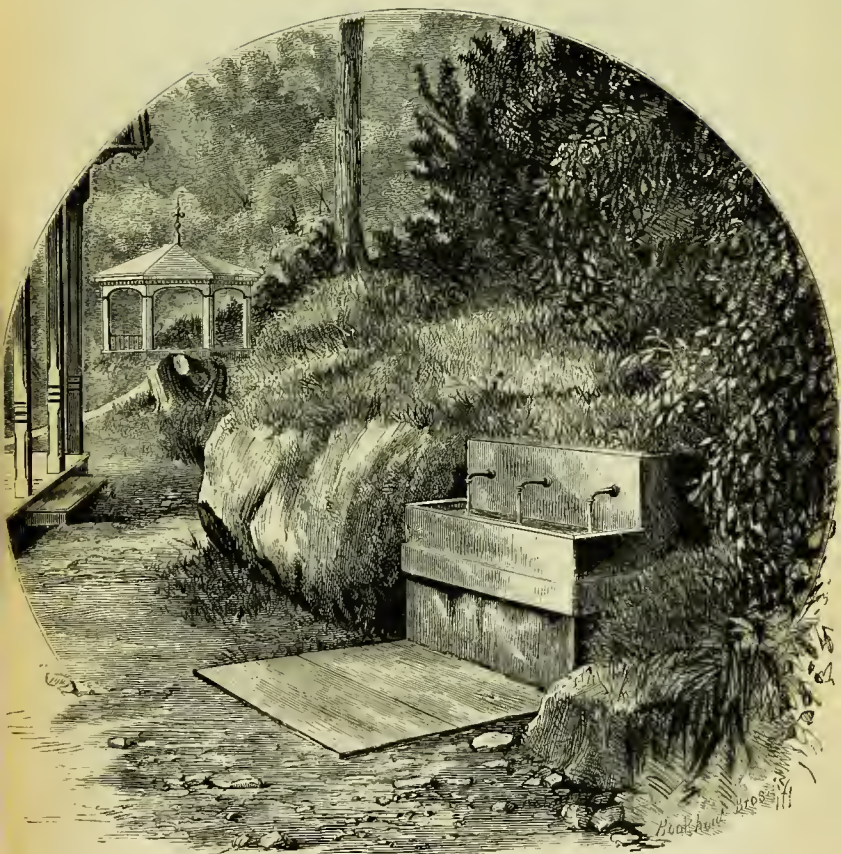
cular organism. It is not maintained that all of the constituents of the Mineral Water are retained, doubtless an almost infinitesimal quantity is incorporated each day; but in the course of weeks there is a decided and radical result, an alterative effect, manifested by increased metamorphosis of tissue, by elimination of poisonous elements, by the cure of disease. If too long continued, however, a cachectic state will result, similar to that produced by the prolonged administration of other alterative agents after the full effect has been produced.

All Mineral Waters produce an alterative action. Is there any difference in this action as it results from various waters? We answer, unhesitatingly, yes. The alterative effect of different classes of waters varies, just as the alterative action of iodine, arsenic or mercury. Each acts on diverse portions of the blood and tissues. The alterative effect of alkaline waters exhibits itself in a reduction of the fibrinous element of the blood, in a modification of the processes which produce lithic acid. Saline Waters exert their influence most decidedly on the glandular system. Sulphur Waters tend to the skin. Chalybeate Waters affect the red globules of the blood. In like manner we may expect variations in the alterative action of the subdivisions of the different classes; and although our

knowledge in this direction is not as specific as desirable, still there is sufficient to amply establish the varied alterative action of Mineral Waters.

When Mineral Waters are taken in excessive quantities for some time, there is a kind of revolt of the system, known as the bad sturm or bath fever. There is diminished appetite, a sense of excessive fatigue, excitement of the pulse, heat of the skin, and sometimes giddiness. While this feverish condition testifies the constitutional action of the water, it is in no way necessary or desirable in the treatment of disease. It corresponds to the ptyalism, produced by hydrargyrum; the nausea, dryness of the throat and irritation of the eyelids, caused by arsenious acid, and the pustular eruption resulting from iodine. When this irritant action of a Mineral Water shows itself, it is necessary to diminish the quantity taken or entirely suspend it for several days. The action of thermal waters, containing but a small proportion of mineral constituents, is undoubtedly due to stimulation of the excretory function of the skin. A consideration of the process followed at these establishments enables us to understand how cures are produced in this way. In many of them the following, or a similar routine, is followed: The patient first enters a warm or hot bath, where he remains for some time until

the capillaries of the skin are thoroughly congested. While there he places any painful or contracted joint or neuralgic portion of the body under a spout of hot water; from the warm bath he proceeds to the vapor-room, where he is surrounded with hot vapor of high temperature. During his stay in this apartment he drinks freely of hot water, and perspiration pours from the integument. Thence he passes to a retiring-room, where he reclines on a cot, well wrapped in a blanket; there he remains for fifteen or twenty minutes, most of the time in a bath of perspiration, and the process is complete. A bath of this kind is repeated every day or every other day for weeks. Is it surprising that under these conditions the metamorphosis of tissue proceeds with excessive rapidity; that changes are wrought in a few weeks which, in the ordinary course, would occupy years? The entire system is drenched with warm water; it is thoroughly washed out, and in these copious sweats uric acid, syphilitic poison, and other materials of disease, are expelled. Profuse warm and hot bathing is sometimes followed by an eruption on the surface of the skin, known as *psudracia thermalis*, the bad *friesel* or *lapousse*. It is accompanied with slight feverishness, fullness of the head and other symptoms similar to those



EYE-WATER SPRING.
(Gardner Magnesia Spring in distance.)

described above in bath fever. These eruptions also occur, in some instances, as a result of the internal use of Mineral Waters. They were at one time thought necessary to the curative action of thermal waters. Experience, however, has proved the fallacy of this idea, unless it be in some instances of inveterate skin disease, when these bath eruptions seem to cure the original malady by substitution.

We cannot close this chapter more appropriately than by quoting the words of the lamented Trousseau, a man possessed of a calm, judicial and philosophic mind distinguished for accurate knowledge in every department of medicine, the most brilliant practitioner of this country : Whatever may be said of them, Mineral Waters are not simple medicaments ; whatever may be the predominant mineralizing agent, as demonstrated by analysis, it acts not alone. Nature in combining with the more or less notable elements which chemistry may isolate, other exceedingly variable ingredients and principles which have not yet been discovered, has done for this mineralized agent that which we seek to imitate each day in our prescriptions when we endeavor to re-enforce or diminish the effect of a medicinal substance by associating others with it.

CHAPTER III.

SHARON MINERAL SPRINGS.

AFTER the preceding general statement of the case, we are prepared to direct our attention to the Mineral Spring at Sharon.

RECENT MINUTE ANALYSIS OF THE PRINCIPAL SPRINGS.

White Sulphur Spring.

Contents of one gallon:

Bicarbonate of magnesia.....	24	grains.
Sulphate of magnesia	34	“
Sulphate of lime	85.4	“
Hydrosulphate of magnesia and lime	3	“
Chloride of sodium and magne- sium	2.7	“
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Solid contents	149.1	“
Hydrosulphuric acid gas, or sul- phureted hydrogen	20.5	cub. in.
Temp. invariably 48° Fahren.		

Magnesia Spring.

Contents of one gallon:

Bicarbonate of magnesia.....	30.5	grains.
Sulphate of magnesia	22.7	“
Sulphate of lime	76	“
Hydrosulphate of magnesia and lime5	“
Chloride of sodium and magne- sium	3	“
<hr/>		
Solid contents	132.7	

Hydrosulphate acid gas, or sulphureted hydrogen 3.3 cub. in.
Temp. invariably 48° Fahren.

Gardner Magnesia Spring.

Contents of one gallon:

Sulphate of magnesia	19.680	grains.
Sulphate of lime.....	93.500	"
Bicarbonate of magnesia	1.360	"
Bicarbonate of lime	9.698	"
Bicarbonate of soda554	"
Chloride of sodium	1.232	"
Chloride of magnesium.....	.438	"
Chloride of calcium162	"
Sulphurets cal. and magnesium,	.625	"
Silicic acid400	"
<hr/>		
Solid contents	127.639	"
Sulphureted hydrogen	6.00	cub. in.
Carbonic acid	2.22	"
Atmospheric air	3.00	"
<hr/>		
	11.22	"

Temp. invariably 48° Fahren.

Chalybeate Spring.

Sulphate of magnesia	20.56	grains.
Sulphate of lime.....	16.27	"
Sulphate of soda	12.35	"
Sulphate of iron.....	24.00	"
Sulphureted hydrogen gas37	"

Temp. invariably 48° Fahren.

The contents of one gal. of blue sulphur were:

Bicarbonate of magnesia.....	32.	grains.
Sulphate of magnesia	7.5	"
Sulphate of lime.....	77.5	"
Chloride of sodium and magn'm,	2.5	"
<hr/>		

Solid contents 119.5 "

CHAPTER IV.

GENERAL DIRECTIONS FOR THE USE OF THE SHARON
WHITE SULPHUR AND MAGNESIA WATERS.

MUCH that might have been said under this head has been anticipated in the chapter on Mineral Waters in general.

1. It is scarcely necessary to remark, after all that has heretofore been said of the necessity of using Mineral Waters, with strict reference to the nature of the disease in which they are employed, and of the injurious consequences often arising from their careless or improper use, that it is not designed that the directions herein given shall be considered sufficient to guide in the use of the White Sulphur Water in all cases, nor in any difficult and important case to the exclusion of the more minute and specific directions which such case may demand. It is my intention rather to indicate the general rules which ordinarily must be observed in its administration, than to lay down definite directions which shall apply to all cases.

Every one who is familiar with the various types of disease, and with the peculiarities and radical

difference in different constitutions and temperaments, modifying and influencing diseased action, will at once be satisfied of the impossibility of laying down any absolute rule for the use of a patent medicine, that should be strictly adhered to in all cases. Each case, to a certain extent, must, with this as with all other medical agents, indicate the proper dose and the proper manner of administration.

2. As has been already remarked, it is very common to attribute the beneficial effects of Mineral Waters to their immediate sensible and obvious effects upon the human body. I have already shown this opinion to be erroneous; that, so far from it being true that Mineral Waters uniformly manifest their beneficial effects by their active operations, such operations frequently delay or entirely prevent the good which they otherwise would have accomplished through the medium of their alterative effects.

Those who desire to obtain the alterative operations of the water must, as a general rule, take it in small quantities, and continue its use for such length of time as will be sufficient, in common spring parlance, to saturate the system. Patients thus using the water are apt, however, to become restless and dissatisfied for the first few days; so

much so that it is often difficult to reconcile them to this manner of administration, because, say they, it is doing me no good; they wish to see such tokens of activity as are given by prompt and vigorous purgation. In a general way, I prefer that the water should act sufficiently on the bowels even when given in reference to its alterative effects, to obviate the necessity of giving any other medicine for that purpose; but it is often better to use some mild purgative from the shops to effect this object for the first few days, than that the quantity of water should be greatly increased. This advice we know is very different from that generally given, and but too willingly pursued by those who receive it.

Comparatively but few strangers who visit the White Sulphur are aware of the potency of its waters, and under the false impression that no harm will arise from any quantity that the stomach will bear, many are induced to use them in quantities that not only defeat their sanative effects, but do much positive injury. I have just remarked that it is often difficult to reconcile patients to the use of small and inoperative quantities of this water. Many such instances have come under my observation, and some in which painful experience alone could control.

A prominent instance of this kind occurred in my practice several years since in the person of Mr. C——. He was under treatment for a complicated stomach and neuralgic affection, and happy effect : he was lodging at one of the hotels, and believing that he was doing well, I did not see him for two or three days, and then casually met with him. I was astonished to find him greatly changed for the worse. His appetite, before good, had almost entirely ceased ; his system was irritable and feverish ; could not sleep at night, and in every respect was sensibly worse ; had begun to despair, and proposed leaving for home, as he was satisfied the water was not agreeing with him. I accused him of impropriety in diet, or of other imprudences, but he satisfied me that he had followed my directions in all such things, but that he had so far varied from my advice in the use of the water, as to take sixteen instead of six glasses daily for the last few days. I advised this gentleman, as I would all others who have committed a similar debauch on cold water, to discontinue its use entirely for a time ; take some cooling opening medicines, and then return to the use of it in rational doses. This plan was pursued by Mr. C., and with the happiest results.

The opinion is as common as it is erroneous among those who visit Mineral Waters, that they

are to be benefited in proportion to the quantity they drink. Persons in health, or not debilitated by disease, do sometimes indulge in enormously large and long-continued potations of such waters with apparent impunity ; but it, by no means, follows that those whose stomachs are enervated by disease, and whose general health is much enfeebled, can indulge the habit with equal safety. In such stomachs the effects of inordinate distention are always painful and injurious, while the sudden diminution of the temperature from large quantities of cold fluid suddenly thrown into the system can scarcely fail to prove injurious. We sometimes meet with another class of visitors who err just as much on the opposite extreme ; they arrive at the Springs and place themselves under the government of a recipe for the use of the water, drawn up most commonly by some distant medical adviser, who has never himself had an opportunity of observing its effects ; and such we not unfrequently see taking this *aqua medicinalis* in literally broken doses, in quantities altogether insufficient to produce any sanative effect.

QUANTITY OF THE WATER TO BE USED.

The quantity of the water to be taken in the course of the day depends, in a very great degree,

upon the nature of the case and the peculiar condition of the system at the time of taking it. Comparatively but few invalids should use, at first, more than from four to eight glasses during the day, in some instances not more than two or three. In most cases these quantities may be gradually increased to ten or twelve glasses. In a general way this should be considered the maximum quantity, even for robust persons, though there are cases in which the amount may be still further enlarged.

PERIODS FOR THE USE OF THE WATER, ETC.

The periods at which the water should be used is a matter of no little importance. A common practice at the Springs is to drink it a short time before each meal, morning, noon and afternoon. In some cases this manner of using the water is to be preferred; in others it is better that the whole that is taken in the course of the day be divided into two parts, and taken either in the morning before breakfast and a short time before dinner; or, in the morning and a short time before going to bed at night. Advantage is very seldom secured from the water taken before supper, and often it is prejudicial from its proneness to run off by the kidneys.

Observations lead me to believe that, as a gen-

eral rule, the water taken before breakfast and before going to bed at night, is most serviceable to a majority of invalids; though there are some who cannot very well bear it at night, and attention should always be paid to this circumstance.

It should not be used immediately before or after a meal; nor should glass after glass ordinarily be taken in rapid succession. By this reprehensible practice the stomach is often overtasked, and immediately unpleasant consequences result, such as eructations, giddiness, unpleasant excitation and a painful sense of fullness, and sometimes a permanent injury of the stomach, with atonic dyspepsia.

Such a course also disposes the water to run off, hastily, by the kidneys—an operation for which it has, naturally, a strong tendency, and which often embarrasses in its administration. Now and then advantage is derived from using the water at meals, and sometimes a tolerance is established for it in this way which cannot be achieved by any other. In most cases, however, it is very unpleasant to the invalid to use it with his meals.

I cannot leave this branch of the subject without earnestly urging upon invalids the importance of strict attention as to the manner and periods of using the White Sulphur and other Mineral Waters of Sharon. Much, very much of its curative power

depends upon the use of proper quantities, and upon the periods of administration. A series of comparative experiments with the water, as to times of using, quantities used, etc., has fully satisfied me that its influences on disease are as much modified by the different methods of using it as we find to be the case with iodine, or any other article in general use by the physician.

LENGTH OF TIME TO USE THE WATER.

The length of time the invalid should continue the use of this water depends entirely upon the nature of the case, the manner in which it has been used, and the susceptibilities of the system. Most erroneous notions exist in a large portion of the public mind upon this subject. Many believe that it will exert all its good influences, or, as they say, will "saturate the system" in eight or ten days, others allow it two, three and four weeks to effect the same object. Now, the truth is, that the time in which the ultimate good effects of the water are accomplished, always depends, as before remarked, upon circumstances — upon the nature of the case, the manner in which the water has been used, and upon the susceptibilities of the system. Some persons will be thrown as fully under its influence in two weeks as others will be in four, and yet it may

be equally well adapted to each case. In every case of its administration, respect should rather be had to the effects it is producing than to the time it has been used.

It never cures diseases until it has first produced certain effects upon the animal economy — effects which can always be distinguished by the practiced observer during the progress of their operation, with the same certainty that we can distinguish the effects under the alterative operation of iodine. It often happens that persons to whose cases the water is well adapted, use it assiduously for three or four weeks, without deriving a particle of permanent benefit; — and all in consequence of so improperly using it, both in time and quantity, as to force it out of the system by the emunctories, without touching the case — without being permitted to tarry long enough to produce any of those salutary effects which must precede a cure.

It cannot, therefore, be too earnestly urged upon those who are using the water for any obstinate disease, to have their attention fixed upon the effects which it is producing, or has produced, rather than upon a given number of days, in which they may have been taught to believe their systems would become changed or saturated.

Dr. Armstrong found that from six to twelve

weeks were often required for Harrowgate and Dinsdale waters to produce their full curative effects, and we occasionally see similar time required for the development of the full sanative effects of this water. In some cases, however, where the system was previously well prepared, and the subsequent management judicious, the White Sulphur Water will produce its full alterative operations in about two weeks. Such cases, however, are rare, and it will generally be found that from three to six weeks, or even longer, must elapse under its use, before those profound changes are wrought which precede and insure a return to health. These remarks, as far as they relate to time, are applicable to all our Mineral Waters that cure disease in virtue of their alterative action ; for if they be true as to the Harrowgate, admittedly one of the strongest Sulphur Waters in the world, and of the White Sulphur, scarcely, if at all, inferior in strength to that celebrated European Spring, they cannot be less true of waters of the same class, but inferior in point of strength. When Sulphurous Waters are prescribed, their operations should be narrowly watched ; and if they produce untoward and unpleasant symptoms, such as headache, gastric distress, furred tongue, quick and irritable pulse, with costive bowels and loss of appe

tite, they should ordinarily be temporarily or permanently discontinued, as circumstances may demand. The temporary discontinuance of the water, under the circumstances just supposed, and the use of a brisk cathartic, or general depletion, if the state of the blood vessels demands it, will generally enable us to return to its use in a day or two with safety and success.

PREVIOUS PREPARATION FOR THE USE OF THE WATER.

Some preparation of the system preceding the use of the water is often, though not always, necessary for its safe and advantageous administration. Most persons, after the excitement usual to the travel in visiting the Springs, will be profited by taking some gentle purgative, and by the use of a light and cooling diet for a day or two before the water is freely used. Those in feeble health should always commence the use of the water with great caution, and generally in its least stimulating form, that is, after it has sat in an open vessel until its gas has escaped. If, with these precautions, it fail to exert its desired effects, or produces unpleasant symptoms, the medical adviser, to whom it would be necessary to resort in such an emergency, would, of course, prescribe according to circumstances;

nor can any general rule be given as respects the treatment that would be necessary in such a case, one patient often requiring treatment essentially different from another. Invalids, however, ought not to despair of the use of the water, and of its adaptation to their cases, simply because it may at first, or even in the progress of the use, display some vagrant and improper action upon the system. Errors in its action, if they may so be termed, generally arise from errors in its use, and may generally be prevented by a change in the method of administration, or by some medical adjuvants, so that the water may be safely continued.

EFFECTS OF THE WATER ON THE SYSTEM.

The sensible medicinal effects of the water are prominently displayed in its action upon the bowels, liver, kidneys and skin, and, when drunk fresh at the fountain, by a lively, stimulant effect upon the system in general, and upon the brain in particular. Proper quantities, taken in the morning before breakfast, will often exert some cathartic effect in the course of the day. The liver is in most instances brought under its influence from a few days' perseverance in the use of it, as will be manifest from the character of the excretions. Its action upon the kidneys is readily induced, and we

occasionally see it exerting at the same time both a diuretic and cathartic operation. Very commonly the exhalent vessels of the skin are stimulated to increased perspiration ; but its full effects upon the surface, manifested not only by increased, but sulphurous perspiration, do not often occur until it has been freely used for several weeks, nor until the secretory system generally has been brought under its influence. As the system is brought under the influence of the water, the appetite and the ability to digest food are sensibly augmented. The spirits become buoyant and cheerful, with increased desire for social company and amusements. Exercise, previously irksome, is now enjoyed without fatigue, and so great is the change in the whole man that the patient often expresses his appreciation of it by declaring that he is "a new man ;" and so he is in reference to his physical and social feelings.

USE OF MEDICINES.

Advantage is often derived, during the administration of this water, from the judicious use of appropriate medicinal adjuncts, whose tendency is to give to the water a specific direction upon the organs, or to restrain some untoward and improper action. In most obstinate cases, in which it is de-

sirable to procure the specific operations of the water on particular organs, much time, to say the least of it, is saved by uniting with the water, for a few days, some adjuvant that specifically determines to such organs. By such a procedure, the water may be invited to the organs, and establish its action upon them much sooner than it would without such aid. In diseases of the abdominal viscera generally, the patient may often economise a week or more of the time which otherwise it would be necessary for him to use the water, by the proper introduction of some medical adjunct to the end that has been intimated. The milder mercurial, in union with some of the vegetable purgatives, often answer exceedingly well in such cases.

I believe that the proportion of invalids, especially of such as are suffering with biliary derangements, that will derive increased benefit from the employment of mild alterative cathartics, to precede or accompany the use of the Sharon water, is as ten to one, at least, and that, in nine cases out of ten, the subject of biliary derangements will economise a week or ten days in the necessary use of the water, by the occasional use of such medicines. As this is a matter of importance to many invalids, I remark that, of the varied forms of pur-

gatives which I have tried, none have proved so generally beneficial as the following :

R Extract colocinth comp.....	3 i ss.
Blue mass.....	℥ ii ss.
Ant. tart.....	gr. ii.
Oil caraway	gtt. vi.

Mix and make twenty-five pills. .

The dose must be regulated by the effects produced. One or two stools should be procured each day, and ordinarily two of the pills will produce this effect, until the water has time to alterate the liver, and supersede their use altogether.

During the same period advantage may generally be derived from the use of some of the vegetable-bitter extracts or infusions, such as the quassia, gention, or columbo. A most valuable aid in the use of this water is the tepid, warm, or hot sulphur bath. We cannot here enter into particular directions for the use of such baths. We just observe that they may be made a most important auxiliary in a large circle of cases, if timely and otherwise properly employed. Hot sulphur bathing, indeed hot bathing of any kind, is a remedy, potent and positive in its influences, capable of effecting much good when judiciously employed, or corresponding evil when improperly used. Like potent Mineral Waters, it is often used empirically and improperly,

and hence, becomes a curse when it should have been a blessing. It is a remedy essentially revolutionary in its character ; never negative, but always producing positive results upon the economy for good or for evil. The condition of the system indicates with sufficient clearness the time for commencing, and the temperature of the bath, in most cases ; the bathing point is as clearly indicated under a course of Sulphur Waters as the blistering or bleeding point is in inflammations, and the value of the remedy is much dependent upon such timely employment. When the water has well opened the bowels, has found its way into the general circulation, softening the skin and calming the irritation of the arterial system, the sulphur baths may be used with great confidence in their efficacy. Hot baths should never be taken during the existence of febrile excitement. They should be used on an empty stomach, and as a general rule, before the decline of the day, and their temperature always carefully regulated to suit the nature of the case and the state of the system.

CHANGING FROM SPRING TO SPRING.

A very common error in the use of Mineral Waters is the belief that the patient should often change from one Watering Place to another, and

that no one should be used longer than some given number of days, and this without any reference to its effects upon the system. This absurd notion leads many persons to fly from Spring to Spring, performing in a few weeks or days the circuit of the whole Spring region, and without remaining long enough at any one to receive permanent benefit. Now, if the position heretofore laid down be correct, that Mineral Waters, like all other medicines, cure disease by exerting effects upon the animal economy, the impropriety will be obvious to all, of rapidly hastening from one fountain to another, without tarrying long enough at any to receive those effects upon the body which are necessary to a cure. Such a water-drinker acts like the "maid of all works, always busy but accomplishing nothing." What would be thought of the physician who, having decided that his patient must undergo the influence of alterative action upon his system, and having put him upon a course of mercury to accomplish this object, should, just before this drug would have accomplished the end, discontinue its use, and put him upon iodine, and just as this was about to alternate the system, abandon it and substitute sarsaparilla, and thus, from one drug to another, running through the whole routine of alterative remedies, without giving any sufficient time to effect

the object. This would surely be an absurd method of practice, and yet it would not be more absurd than the course we often see pursued by visitors at our Springs, who literally waste their whole time in the country and debar themselves of all permanent good by spending their time rather among the Springs than at any one of them. The state of mind which leads invalids thus improperly to act is often induced from the random opinions or injudicious advice of their fellow-sufferers whom they meet with at the various Watering Places. One will tell another that they have seen or heard of some person that was cured at once, at this, that, or the other Spring. You will be assured by one, that Saratoga is the place ; by another, that Avon is better suited to your case ; a third informs you that you would do better at Sharon ; while others will tell you there is nothing like the Richfield water. Thus are the minds of persons frequently perplexed, until they come to the conclusion to make the rounds and try them all for a day or two. In this way the hopeless invalid is often led to fritter away the whole time he remains in the country, without deriving permanent advantage from all the Springs when, very probably, the time he had fruitlessly spent at them all would have been sufficient to have cured him at any one of them. Let it be

distinctly understood that these remarks are meant for the serious invalid only. Persons who visit the Springs for amusement or pleasure, or those who come merely as a relaxation from business, and require only the tone which travel and mountain air can give, may, with great propriety, go from Spring to Spring, and spend their time just where they are the happiest. But for the invalid who has something for the waters to do, it is not so; he should first wisely determine which of the Springs is best calculated to cure his disease, and having settled this important question, should persevere in the use of that particular water, carefully watching its effects, and not be carried about by every wind of doctrine. If the appropriate agent for his cure be the Magnesia, the White Sulphur, the Congress, let him use it to the exclusion of all others, either until its inapplicability has been proven, or until it produces the specific effects which he desires.

DRESS.

Delicate persons visiting the mountains for health should be particularly cautious on the subject of dress. It is rather more easy to dress with the ever-varying fashions, than to dress appropriately for all the weather that happens in our mountains during the watering seasons. The weather is often so

variable and uncertain as to make it a good general rule for the invalid to dress without reference to any particular state of it, but always warm and comfortable, with (in most cases) but little change from his dress in the spring season before he reached the mountains. Some invalids will be benefited by constantly wearing soft flannel next the skin, not only because it keeps up a more uniform temperature than linen, but also because of the gentle excitement it occasions on the surface of the body. The best summer dress, however, which we have ever seen worn next the body, and always a valuable accompaniment of flannel, winter and summer, is woven silk. We are led to believe from experience that silk, worn next the skin, is the very best protection we can command against the influence of cold. In rheumatism and neuralgia a covering of woven silk is a valuable remedy, and for all delicate persons, and for those peculiarly susceptible to colds, it is a most invaluable shield to the body. The superiority of silk over every other covering is probably owing to its peculiarity as a non-conductor of electricity; but whether this be so or not is left to the astute medical philosopher to determine; it is sufficient for us to know the fact of its superior efficacy, without stopping to account for it.

DIET, EXERCISE, ETC.

Diet and exercise during the use of Mineral Water are of too much importance to be passed over without notice. It is to be regretted that so little as relates to diet is placed within the power of the invalid at our Watering Places generally. Usually there is but one general system of living at all such places, and this invariably a system very illy adapted to the invalid. Persons using the Mineral Water at Sharon may ordinarily indulge in moderation in that diet which they found to agree best with them at home. Imprudencies as to the kind of food, or of excess in its quantity, should be as carefully avoided by the invalid, while using the water, as when under treatment by other medical means. This, however, is by no means commonly the case. The use of the water generally removes acidity from the stomach, and sharpens both the appetite and the digestion, hence it is often really difficult for the invalid to restrain himself at table, and we might be astonished to see the quantity and quality of food he sometimes consumes. Dyspeptics, as might be expected, suffer most from impropriety in diet; indeed we are persuaded that more than half the good this water would otherwise achieve in such cases is prevented by impro-

priety in diet. But the evil of over and improper feeding, although most manifest in dyspeptics, is by no means confined to such. Upon the subject of diet Dr. John Bell has well observed, that slow and laborious digestion, heartburn, disordered kidneys, discoloration of the skin, and some affections of the liver, often the effects of excessive eating and drinking alone, are not to be readily cured by visiting Mineral Springs and keeping up the same kind of living. If they, and the remark applies to all invalids, be sincerely desirous of gaining health, they will most successfully do so by simplifying their regimen, and abstaining from all those appliances to force appetite and tickle the taste, which they had formerly used in the shape of ardent spirits, wine and malt liquors, fried meats, pastry and unripe fruits. In fine we may sum up in a few words by repeating after the great father of medicine, that all excesses are dangerous, a maxim every one must have fully tested. Eating much in the evening, sitting up late, prolonged and immoderate dancing, remaining too long in the cool air of the evening, are often the cause of many unpleasant complaints which might have been easily prevented. The passions are to be kept in check by avoiding every exciting cause, either of the boisterous or melancholy kind. A giddy chase,

after pleasure and luxurious indulgence, is scarcely more reprehensible than an indolent and secluded life. The kind and amount of exercise to be indulged in by the patient must, of course, be regulated by the nature of his disease and the attendant circumstances; walking, riding on horseback or in a carriage, may be selected, as one or the other may be best adapted to the physical ability, and to inclinations of the patient, but in some form or other all whose strength will admit of it should take regular exercise in good weather.

CHAPTER V.

SOME ACCOUNT OF THE DISEASES IN WHICH THE
SHARON WATERS HAVE BEEN FOUND SUCCESS-
FUL — WITH DIRECTIONS FOR THEIR USE.

ALL Mineral Waters, as before remarked, are stimulants to a greater or less degree, and consequently are inapplicable to the treatment of acute or highly inflammatory diseases. This remark is especially true as relates to the White Sulphur, particularly when drunk fresh at the Spring, and abounding in its stimulating gas. It is true, as before shown, that when its exciting gas has flown off it becomes far less stimulating, and may be used with safety and success in cases to which in its perfectly fresh state it would be totally unadapted. But even in its least stimulating form it is inadmissible for excited or febrile conditions of the system, and especially to cases of inflammatory action, at least until the violence of such action has been subdued by other and appropriate agents. It is to chronic affections of the organic system that the White Sulphur Water is peculiarly applicable.

Various diseases of the stomach, liver, spleen,

kidneys and bladder, as well as some derangements of the brain and nervous system generally, are treated successfully by this agent. To the various affections of the skin, unattended with active inflammation, to chronic affections of the bowels, and to gout and rheumatism, it is well adapted. In hemorrhoids, in some of the chronic affections of the womb, in chlorosis and other kindred female disorders, in mercurial sequelæ, and especially in the secondary forms of syphilis and ill-conditioned ulcers in depraved constitutions, it constitutes the most valuable agent to which the invalid can resort. If the individual about to submit himself to the use of this water is suffering from fullness and tension about the head, or pain, with a sense of tightness in the chest or side, he should obtain relief from these symptoms before entering upon its use. If his tongue be white or heavily coated, or if he be continuously or periodically feverish, or have that peculiar lassitude with gastric distress, manifesting recent or acute biliary accumulations, he should avoid its use until, by proper medical treatment, his biliary organs are emulged and his system prepared for its reception. Much suffering, on the one hand, would be avoided, and a far larger amount of good, on the other, would be achieved, if visitors were perfectly aware of and carefully mindful of these facts.

It is an every-day occurrence during the watering season at Sharon for persons to seek medical advice for the first time, after they have been using the water for days, perhaps for weeks, and it is then sought because of vagrant operations or injurious effects of the water. In most such cases there will be found, upon examination, either the existence of some of the symptoms just mentioned, or evidences of local inflammation in some part of the body, sufficient to prevent the constitutional efficacy of the remedy. We are often struck with the control which an apparently inconsiderable local inflammation will exert in preventing the constitutional effects of Mineral Waters. To remove such local determinations where they exist, or greatly to lessen their activity, is all-important to secure the constitutional effects of Sulphur Water. It is necessary to reflect that Mineral Waters, like all medicinal substances, are adapted only to certain diseases, and that the more powerfully they act the greater mischief they are capable of doing if improperly administered; for, if it be asserted that they are capable of doing good only without the power of doing harm, we may be satisfied that their qualities are too insignificant to merit notice.

This consideration indicates the necessity of some caution in the use of waters which possess any sana-

tive powers, and suggests the propriety in all doubtful cases of consulting some professional man familiar with the subject, whose judgment may determine how far the water is applicable to each individual case, and in what manner it should be employed to be most efficacious.

A long list of successful cases that have fallen under my care, adapted to illustrate the beneficial effects of these waters in some of the more general and important maladies, might, perhaps, without impropriety, be inserted here ; but I am induced to omit the insertion, because I am aware with what suspicion medical cases, however well authenticated, are received from an individual, when they are given to favor any particular practice, or to recommend any particular water. Besides, the insertion of names is objectionable in all private practice, and I consider the reputation of the waters to be now too well established to require such assistance.

But, anxious to obviate all possibility of mistake, and to prevent the reputation of a remedy so well deserving public confidence from being sullied by failures, on account of misapplication and improper collateral treatment, I shall add to a catalogue of the leading diseases to which these Mineral Springs are more immediately adapted, a few succinct directions for the rational observance of such cautions

as will be most likely to increase their salutary efficacy. And this, from local situation, and the ample experience of near thirty years, I flatter myself I am in some measure capable of doing.

DYSPEPSIA.

In this common and annoying disease, consisting in derangement of function in the organs of digestion, the Sharon Magnesia Water has long maintained a high character. In this affection, especially in its confirmed stage, we almost invariably find the biliary secretions either vitiated in quality or deficient in quantity, constituting an important and not unfrequently an embarrassing feature in its treatment, nor can we ordinarily succeed in effecting a cure, until the secretory functions of the liver are restored to a natural and healthy condition.

The beneficial effects of this water in dyspepsia seem to result mainly from its sanative action upon the liver; to alterate the secretory functions of that organ and establish a flow of healthy bile is one of the great fortes of the water, and almost an invariable result of its persevering use. That the water benefits the stomach in many cases by a primary action, first, as an alkali and stimulant neutralizing its acidity, and imparting directly a tone and energy to the viscus, and, secondly, by

a positive influence on its glandular structure, occasioning a healthy flow of gastric juice, we do not doubt ; still, the most decided and permanent benefits derived by dyspeptics have always seemed to us to be the result of full alterative impressions upon the liver. Certain it is that without such an influence upon that organ the dyspeptic can never be confident of the permanency of his relief. It would be well for sufferers under this distressing malady to bear this in mind and not abandon the use of the water, as many do until it has fully impressed the liver, nor be discouraged at its apparent want of efficacy until it has been used sufficiently long to effect this object.

In the course of our observations we have often alluded to the alterative effects of Sulphur Water on the liver as affording a most important indication of its efficacy. It may be asked how shall it be known when this alterative effect has taken place ? We reply, you are to judge of this mainly by the character of the excretions, and by all the indications by which you judge of the alterative effects of mercury upon the same organ.

Dyspeptics often grievously err in the use of the water, by mistaking its primary effects, which are generally transitory, for a permanent cure, and hence abandon it before its permanent sanative

action has been obtained ; such patients not unfrequently, after taking the water for a week or ten days, find that the acidity of the stomach has been relieved, their appetite increased, and that they are able to eat every thing before them. This is all very well as far as it goes, and if their attack be recent and slight, this comfortable state of things may continue ; but it will much oftener turn out to be merely the alkaline and stimulant influence of the water upon the coats of the stomach, imparting this generous tone to the viscus for a season, and which in all probability is destined to lure them into an excess of diet and other imprudences which will ere long develop to them the fact that the monster was scotched, not killed.

The importance of the subject urges us to repeat that the confirmed dyspeptic cannot too forcibly impress upon his mind the essential practical truth, that the alterative influences of the water must be exerted upon his system before he can have assurance of permanent good from its use.

As costiveness and irregularity of bowels are generally found in dyspepsia, some of the warm laxatives may be occasionally used for a short time after commencing the use of the water, and, as the disease is seldom unaccompanied by chronic obstructions, or at least a torpid secretion in the liver, it

will generally be found advisable to combine a slight mercurial with the medicine intended to act slowly on the bowels, and for this purpose pills, composed of aloes, ex-colocynth and blue mass, taken in such doses as to keep up a regular peristaltic motion in the bowels, will be found to answer very well. At the same time, it will be found advantageous to use some of the bitter vegetable tonics a short time before each meal. The water, as a general rule in dyspepsia, should be taken in moderate or small quantities, and with less or more of its gaseous contents, agreeably to the excitability of the system, and the amount of excitation which it may be desirable to produce.

From four to eight glasses in the course of the day is the quantity that is generally found most serviceable in dyspeptic cases. Where the nervous system bears the fresh water with impunity, we prefer that the dyspeptic take it soon after it has been removed from the Spring. With many, however, there is found too much excitability for the water perfectly fresh, such, therefore, should use it more or less stale as their system will bear it.

Gastralgia, or nervous dyspepsia, is a form of disease occasionally met with at our Watering Places, and is an affection often of difficult and uncertain management, whatever be the remedies employed.

When it is purely functional and disconnected with organic lesion, the White Sulphur, administered in moderate quantities and in its least stimulating form, is a safe and sometimes an efficacious remedy. We usually prefer, however, to continue its use, at first, no longer than may be necessary to bring the bowels and the secretory action of the liver under its influence, and then give the patient the advantage of the tonic influence of the waters of the Chalybeate and the Gardner Magnesia.

Pyrosis, or water brash, is another form of stomach disease in which this water is occasionally used, and sometimes with very good effects. Indeed, it is rarely used in water brash without benefit. In this form of disease the water should never be taken in large and often repeated draughts; from such a course increased debility of the stomach, with other deleterious consequences, would rarely fail to follow.

When good reasons exist for supposing the stomach to be schirrous or cancerous, the patient should carefully abstain from the use of this or any of our Mineral Waters. Two cases have come under our notice in which much injury was received from their use, one from the White Sulphur, and the other the Magnesia.

It is scarcely necessary to say to the intelligent

reader, that dyspepsia is rarely cured, whatever be the remedies used, without a careful attention to diet. By care in diet, we by no means wish to be understood that the patient is to confine himself to the stereotyped recipe of black tea and toast, and other light slops — the tendency of which is rather to enervate than invigorate the stomach — or that, in his mind's eye, he is ever to be weighing or measuring the quantity of food he is to consume at each meal. It has rarely been our good fortune to see any one cured of confirmed dyspepsia, who had been long kept on the miserably attenuated debilitating slops so often recommended for such ; and especially one who weighs, if not his appetite, at least his aptitude to eat by *avoirdupois*. The fastidious particularity, *secundum artem*, in such cases, that is often witnessed, serves admirably to impress upon a mind disposed, from the nature of the case, to be distempered, the appalling truth that mortal disease is ever threatening, to induce low spirits and despondency, and to superadd new horrors to a disease of itself sufficiently horrible. The diet in dyspepsia should always be appropriate to the wants and ability of the stomach. In a majority of cases, the dyspeptic will more readily digest the lighter meats than the vegetable matter upon which they generally feed ; and in such case

there is nothing more proper than light meats. Fresh eggs, properly prepared, may always be taken. Coarse rye bread is often the best diet of the kind. When wheat bread is used, it should always be well lightened and stale. Bread of corn, popular as a diet in Virginia, is found to agree admirably with some dyspeptics. Milk, as a general rule, is not only harmless, but useful. Vegetables, whether dressed or undressed, in their simple state, or manufactured into pies, tarts, sweet-meats, etc., must be repudiated. The same of soups, gravies, molten butter, etc. After all, however, there is no one who can judge of diet for the dyspeptic, like the dyspeptic himself.

Let such carefully examine themselves, and especially the effects of different articles of diet upon their system, and they may without mistake settle down upon those that are most beneficial. The true and only secret upon this subject is, to eat nothing that disagrees, and any thing that does.

DISEASES OF THE LIVER.

The liver is the largest gland in the human body, and the first to exhibit development in the foetal state. It exists in almost every variety of animals, even in those whose other organs are very imperfectly developed. Its great size, its early and rela-

tive development in the fœtus, and the complicated character of its vascular machinery, all point it out as an organ of immense importance in the animal economy, and renders the opinion very probable, which has been long entertained by physiologists, that it performs other functions and offices in the body, besides the daily secretion of a small quantity of bile. The amount of bile secreted by the liver in twenty-four hours, in an ordinary healthy condition of the body, is said not to exceed six or eight ounces — a relative amount altogether inadequate to its vast size and vascularity, in contrast with any other gland of the body. It serves as a central termination of the black blood of the abdomen, as the lungs do of the blood of the general system, a peculiarity which distinguishes it from every other gland of the body, and renders it probable that, like the lungs, it exerts a peculiar influence upon the circulating fluid. The variety of forms and phases under which liver complaints exist, and the sympathies by which the liver is connected with other organs and tissues of the body, demand the careful consideration of the medical practitioner in making up his diagnosis, and must always be duly weighed in forming his prognosis as to the results of clinical effort. The sympathy between the liver and stomach is constantly remarked, and is often

so intense as to cause the practitioner to doubt as to which of the organs is the primary seat of disease. Indeed, the symptoms attending biliary derangements are so easily mistaken for, and so generally accompanied by derangements of the other digestive organs, as often to mislead both the patient and his medical adviser. Hence it is that liver disease and dyspepsia are so often confounded, and the intelligent physician unable clearly to determine which of these organs was the original seat of the malady. The sympathy between the liver and brain has long been observed. In functional or structural derangements of the liver, there are few symptoms more constantly present than vertigo, headache, or disturbance of the mental faculties. So constantly do these disturbances of the mental functions exist in liver complaints, that they present one of the leading diagnostic symptoms of the existence of the disease. It has long been observed that intense thought, or any strong emotion of the mind, will derange the biliary secretions. Fear, grief, and the other depressing passions, lessen, while anger, hope, joy, etc., increase and sustain a rapid flow of bile.

Diseases of the liver not uncommonly assume the appearance of pulmonic affections, and sometimes end in actual disease of the lungs. Doubt-

less this is often owing to the encroachment of the liver on the lungs, when the former is morbidly enlarged, thus disturbing the respiratory functions; or an irritation may extend itself from the former to the latter, and assume all the symptoms of an original idiopathic affection, while the original malady lies concealed.

Chronic hepatitis is a very common disease in this country in our warmer latitudes and miasmatic districts. In its least complicated form it is characterized, pathologically, by a plethora or congested state of the vascular system of the liver, accompanied, of course, by derangements of the biliary functions and of the nervous system of the organ. Its approaches are generally slow and insidious, and often the health is entirely undermined before the sufferer is fully aware of his danger; for without any symptoms of severe indisposition, it will often run on to suppuration or organic induration of the viscus, before its existence is suspected. I once saw a patient, in the city of New York (a young man), whose first serious concern for his condition was occasioned by the bursting of an abscess in his liver. He died a few hours afterward, and a post-mortem examination revealed the fact that his liver had been so entirely absorbed as to leave only a very

small portion investing the gall bladder. Chronic inflammation of the liver seldom goes for a great while without producing important mischief in the organs, occasionally resulting in abscess or tubercles, but more generally in indurating the structure or enlarging the volume of the viscus, constituting what is termed enlarged liver, schirrous liver, etc.

While this chronic inflammation, obstruction or impaired function of the liver is going on, they occasion indigestion, flatulence, a tenderness or pain in the right hypochondrium, which pain is often extended to the right scapula or top of the shoulder, but occasionally in the back or on the left side, over the region of the heart. (Johnson.) To these symptoms are usually added an unpleasant sense of distention about the stomach, acidity, inability to lie comfortably on the left side, with pale or sallow complexion and a gradual diminution of the flesh and strength. In the beginning of these affections, the bowels are generally constipated, the fæces being at one time of a dark and at another of a lighter color than natural. As the disease advances, it sometimes ends in diarrhoea or dysenteric irritation. Listlessness, languor and aversion to enterprise are characteristics of the disease. The sufferer delights to detail the misery of his

case, and contemplates it, ordinarily, in its most unfavorable results. Wherever we find derangements of the hepatic functions, we find low spirits, irritability of temper, fickleness, timidity and hypochondriacism to a greater or less extent, and this irrespective of the high natural order or cultivation of the mind of the sufferer.

The White Sulphur Water of Sharon acts specifically upon the secretory organs, and especially upon the liver. We have already, in another part of this volume, shown the striking similarity of action between mercury and Sulphur Waters upon the animal economy. In nothing is this more manifest than in their operations on the liver.

The *modus operandi* of Sulphur Water upon this viscus is dissimilar, we conceive, from that of mercury, and yet the effects of the two agents are strikingly analogous. The potent and controlling influences of the water over the secretory functions of the liver must be regarded as a specific quality of the agent, and as constituting an important therapeutical feature in the value of the article for diseases of this organ. Its influence upon this gland is gradually but surely to unload it when engorged, and to stimulate it to a healthy exercise of its functions when torpid. The control which

it may be made to exercise over the liver, in correcting and restoring its energies, is often as astonishing as it is gratifying, establishing a copious flow of healthy bile and a consequent activity of the bowels, imparting vigor to the whole digestive and assimilative functions, and consequently energy and strength to the body, and life and elasticity to the spirits. Attention was directed, at an early period in the history of Mineral Waters, to their controlling influence over diseases of the liver, and by the best-informed practitioners, both of Europe and of this country, Sulphur Waters have always been favorite remedies in the treatment of that class of affections. The celebrated Dr. Armstrong, although of cool, discriminating and well-balanced mind, was so much devoted to their use in chronic inflammations and congestions of the liver, that some of his contemporaries, less practiced in their use, thought him infatuated upon the subject. He preferred them, most decidedly, as an independent remedy, to mercury in all its forms; but very properly observes, that in some cases it will be found best to combine the operation of the two agents at the same time. It is proper that those affected with liver disease (and they constitute no small portion of the population in certain districts of our south-western territory)

should know something of the confidence they may place in these waters for relief.

Volumes might be filled with details of gratifying results that have taken place in the cases of invalids from almost every section of the country, who visited these waters as a sort of last resort for liver disease. And hundreds of delighted witnesses may be found, especially in the warmer regions of the south, who bear a willing and grateful testimony to their utility in such cases. Let us not be understood, however, as advancing the opinion that Sulphur Water will cure every case of chronic liver disease. Far from it. We have already stated elsewhere that Mineral Waters will sometimes fail in chronic diseases of disordered action only. This, it is most probable, happens in cases where the blood vessels have been so long distended as to have lost their power of returning to their natural state. Besides, it will happen that among the number of invalids that crowd our Watering Places, seeking relief from this common affection, many will be found in whose livers organic lesions have already taken place. In such, perfect cures need not be expected, either by Sulphur Waters or any other agents.

In another part of this volume the importance of using mild, alterative, cathartic medicines, in

connection with the Sulphur Water, has been distinctly stated. In a large majority of cases, in commencing the use of the water, perhaps in nine out of ten decided advantage will accrue to the patient by taking, every third or fourth night, the compound Cathartic Pill, composed of colocynth, blue mass and ant. tartar, or if the liver be obstinate, calomel may be substituted for the blue mass in forming the pill, using half the quantity that is directed for the latter.

In obstinate cases, or in those in which the use of mercury is admissible, the nitro-muriatic bath may be resorted to with good effect. It may be prepared as follows: Mix nitric and muriatic acids together in equal quantities and pour two ounces of the mixture into two and one-half gallons of warm water, in a narrow, wooden bucket. The feet and legs of the patient ought to be immersed in this bath, made of the temperature of blood heat, and kept there for twenty or thirty minutes, every night before going to bed. The same bath will remain good for three or four nights. The region of the liver may be sponged night and morning with the same or a similar mixture. The bath should be increased or diminished in strength according to the age, strength, or peculiarities of the patient. I have seen this bath, un-

aided by any other means, produce heavy bilious operations, such as are commonly produced from decided mercurials.

JAUNDICE.

Jaundice is a form of liver disease in which the Magnesia Water is used with very happy effects. This affection is characterized by a yellow tinge of the skin generally, and particularly of the tunica conjunctiva; deep yellow or brown color of the urine; pale or claylike color of the stools; sense of languor and lassitude, with depression of spirits and a disinclination to exercise. A sense of weight or uneasiness is often felt about the pit of the stomach, while the bowels are costive and the urine very high colored. The cause of this disease has always been considered to be obstructions of some kind or other to the free egress of the bile from the excretory ducts of the liver. Most commonly, these obstructions are occasioned by inspissated bile or calculous coneretions within the gall ducts themselves, occasionally from spasmodic constrictions of the biliferous tubes, and now and then from external pressure by tumors on the liver itself or some neighboring part. When the obstruction arises from inspissated bile or very small calculy, or from spasm of the gall ducts

themselves, the disease is comparatively easily relieved, and such cases are generally cured by the White Sulphur Water with certainty in a few weeks; when, however, the obstructing calculi is large, and the spasm and irritation considerable, the disease is not only more tedious, but the measure of relief from the water more uncertain. The use of mercurial aperients, especially small doses of calomel with aloes, or col. and ant., which, while they clear the bowels, excite the biliary ducts, are generally valuable adjuvants to the water. Advantage is also derived, especially in the declining stage of the disease, from the bitter vegetable infusions, such as camomile, gentian or quassia. The nitro-muriatic bath is a remedy of much promise in this disease, and should not be overlooked in obstinate cases.

CHRONIC ENLARGEMENT OF THE SPLEEN.

Disorder and enlargement of the spleen are very often met with at all our Watering Places. For many years we have carefully noted the operation of the White Sulphur Water in such cases. Unaided by other means, it has not altogether realized the high hopes which we once had of it. Satisfied of the great advantage—we might say absolute necessity in many cases—of urging a treatment

more active than the water alone, we now rarely rely on it, to the exclusion of other agents. The preparations of iodine, used both internally and externally, are valuable adjuncts to the water in these cases. We have in some instances derived the happiest effects from large doses of quinine, and often find it necessary to aid the purgative operations of the water in these cases by the use of mild cathartics.

CHRONIC IRRITATION OF THE BOWELS.

Our note-book exhibits a variety of cases of disorders of the alimentary canal, which were treated by this water. They were generally connected with chronic irritation or inflammation, and attended with mucous or serous discharges from the bowels. In such affections, attended with frequent or copious serous dejections, Sulphur Water, if admissible at all, should be used with great care, and in small portions at a time. In cases attended with much irritability of the canal we have found the water entirely inadmissible.

Somewhat less difficulty is presented in mucous diarrhœa, and the action of the water is often favorable. We sometimes find an affection of the mucous coat of the bowels, especially in persons from the warmer regions of our country, connected

with functional derangements of the stomach and liver; and in such cases it will usually be found that, in proportion as the tone of the former and the healthful secretions of the latter are restored, the morbid condition of the bowels ceases. In no class of cases, however, if we except diseases of the lungs, is more prudence demanded in the administration of the water than in irritated conditions of the bowels. When judiciously and cautiously prescribed, the agent is not only a safe, but a valuable remedy in several diseases of this class; but when used, as it sometimes most imprudently is, in cases attended with exalted irritation, or ulceration of the coats of the bowels, the most prejudicial consequences may result. In connection with the water, in this class of diseases, we often, and with excellent effect, use warm emollient cataplasms, with the internal administration of some mild alterative and soothing medicine. To warm sulphur bathing in such cases much confidence is due. To be safely and successfully employed, the bath should be carefully adapted, both as to time and temperature, to the demands of the case. We know that it is usual to decry the use of Sulphur Waters in bowel complaints. We admit that those who enter at random, and without proper discrimination, upon their employment in such cases, will often have cause

for regret. But we venture, nevertheless, to aver that in many cases of chronic irritation of the bowels, attended with diarrhœa, they are, when properly administered, not only safe, but a valuable remedy.

COSTIVENESS.

In costiveness dependent upon deficient or depraved biliary secretions, great confidence may be placed in the persevering use of the water, especially if it be aided by the occasional administration of small mercurials, combined with toraxicum and rhubarb. Where great paucity or deficiency of bile exists, the inspissated ox-gall is found to be useful. It may be taken in pills, in quantities of ten or fifteen grains daily, with a little toraxicum and rhubarb. In costiveness from general inertia of the alimentary canal there is less cause to be pleased with the efficiency of the White Sulphur Water. Such cases are commonly found connected with great languor of the body and general nervous irritability. The use of the sulphur baths, of a temperature from ninety-eight to one hundred and six, should be employed in such cases in connection with the water, which should be drunk as freely as the stomach will bear it, morning, noon and night, unless it run off by the kidneys, in

which case it ought to be entirely suspended for a day, and an active cathartic taken before its use is resumed.

PILES.

The use of mild laxatives in hemorrhoids has been so long a favorite practice that nothing need be said here in its favor. The beneficial effects of this water in piles are doubtless, in some degree, owing to its mild purgative operations, but to a still greater extent to its alterative action. In most cases of this disorder the liver is more or less implicated, and the relief of that viscus brings relief to the hemorrhoidal vessels. We will only add that, both in the common and blind piles, the water is advantageously used, but more especially in the latter.

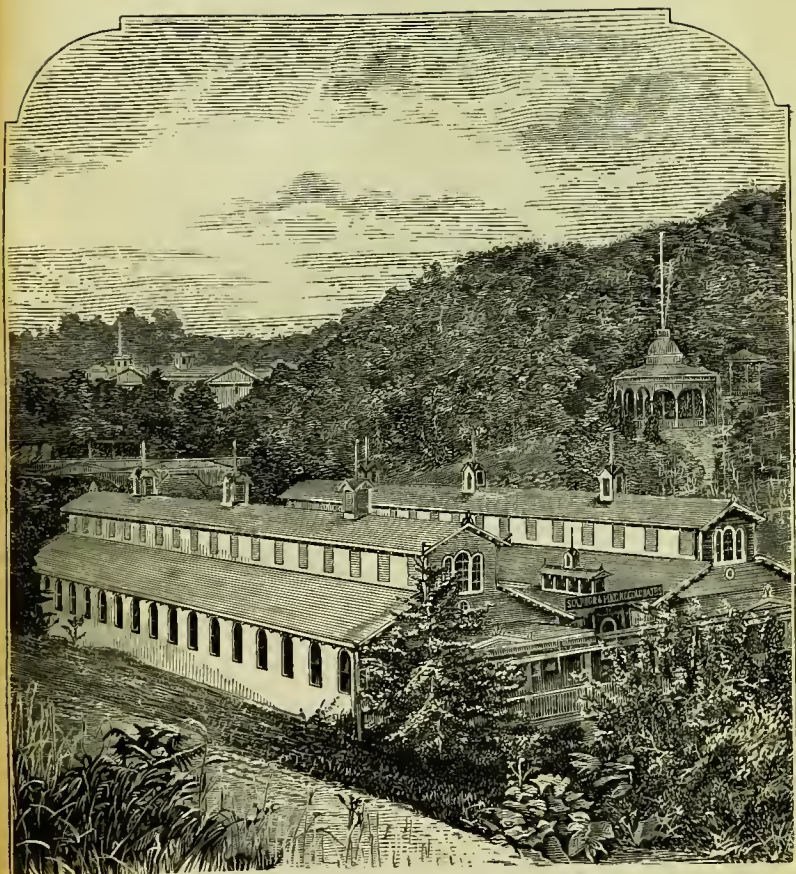
DISEASES OF THE URINARY ORGANS.

Incipient calculous affections are occasionally submitted to the use of this water, and for such cases it has long maintained a reputation. Cases are said to have occurred, though none such have come under our observation, in which it displayed lithontriptic qualities. The palliative effects of the water in calculous affections are often experienced, to the great comfort of the sufferer; but it is only,

we believe, in the earlier stages of such affections that it can be regarded as better than a palliative.

Chronic inflammation of the kidneys, as well as similar affections of the bladder and urethra, are often successfully treated by this water. We deem it our duty to allude to a very common error in the manner of using the water in these affections. We have reference to the practice of drinking it in large quantities, with the view of establishing copious discharges from the kidneys. By an imprudence of this kind, the cure of the case is not only often prevented, but lasting injury inflicted in a superadded debility of the organs. In these cases the water should be so used as to keep up a gentle diuretic action for several weeks, carefully guarding against excessive discharges of this kind.

Diabetes. — The nature of diabetes is so imperfectly understood that medical men do not agree as to the part of the body in which it is primarily situated. Some suppose that the kidneys are the original seat of the disease, others that it depends upon disease of the liver, while others to a diseased state of the blood. Its exciting causes are numerous, such as over-bodily or mental exercise, use of spirituous liquors, excessive or improper indulgences, the depressing passions, etc. It is commonly connected with a depraved and shattered



constitution, and it is often difficult, when physicians are consulted, to say whether it be the cause or the consequence of the constitutional deprivation. It is often attended with indigestion, general debility, constipation of the bowels, thirst, dryness of the skin, and irregular, capricious, and sometimes voracious appetite. Its pathognomic symptom is a great increase in the flow of urine, which is generally of a pale straw color, sometimes insipid, but oftener of a sweetish taste and faint smell, resembling that of violets, and containing a considerable quantity of sugar. Cases of diabetes have not been very numerous at the Springs, but they have occasionally come under my observation. One of great interest fell under my notice some years since, in the person of Mr. S., a very intelligent gentleman from the State of Georgia. He was greatly emaciated from the effects of the disease, but after using the water for some ten days, he commenced improving, and regained his flesh at the rate of a pound a day for a number of days. Another case was so far relieved last summer as to give me confidence in its ultimate recovery. In diabetes the water should be administered in small and oft-repeated doses. The diet should be the most nourishing kind of animal food, and in quantities suited to the strength of the digestive powers.

The tincture of iron is useful in connection with the waters, and the hot sulphur bath is a valuable adjunct in such cases.

NERVOUS DISEASES.

The great increase of nervous diseases within the last decade must have attracted the attention of every observant individual. Neuralgia, in one form or another, has become the prevailing disease of the whole country. It has been but a few years since it was only known among us as a toothache from a denuded nerve, or in the form of the erratic but twinging tic douloureux. Now it is not only the common, but the fashionable disease of the country. Once it was the peculiar privilege of the wealthy and the luxurions to boast of their neuralgia, as the parvenu does of his gout; but now the poorest, most unpretending subject can have his full share of this aristocratic affection. Formerly, a vulgar rheumatism took possession of the extremities, while a still more vulgar dyspepsia claimed the dominion of the stomach. But how changed! Neuralgia now takes the limbs, and gastralgia the *primæ viæ*. Formerly, a fashionable lady, to induce a reluctant husband or father to make a pilgrimage to a fashionable Watering Place, was driven to a vulgar dyspepsia to effect the object; now a

little neuralgia, which may be located just at her pleasure, will answer every purpose. But, soberly, we are, and have been for ten years, living under the reign of a nervous diathesis which literally obliges every species of disease, acute and chronic, to wear its livery. The revolution that it has effected in the type and the treatment of disease is wonderful. To a large extent even our fevers obey its behests, and hence inflammatory and bilious have almost given way in our nomenclature to nervous and typhoid. In every acute disease we are admonished that there is a prevailing constitution that inhibits the lancet and other rapid depletory practice, that so distinguished our country within the present generation. The most apathetic are now obliged to yield to the reign of the nerves, and look around for a placebo that was formerly allotted to the most effeminate alone. The various nervous affections, such as neuralgia, hypochondria, hysterics, chorea, etc., are not unfrequently met with at the Springs, sometimes as primary or independent diseases, but more frequently in connection with derangements of the digestive organs. The direct influence of the water in restoring the tone and energy of the general system, by removing obstructions and correcting the functional derangements of the organs, obviously point to it as

a remedy in the latter class of cases. The invigorating effects of the salubrious and charming climate in which the Springs are situated, and, we might add, the advantage of the exercise necessary to reach it, are efficient auxiliaries in such cases.

PARALYSIS.

In most cases, palsy is the sequel of an attack of apoplexy, which has come on suddenly and unexpectedly. In other cases, however, it is brought on slowly and from causes that do not directly implicate the brain, affecting certain muscles only, leaving others of the same parts untouched. Paralysis may be complete or incomplete; that is, the muscles affected may be totally or partially powerless. There are many other causes beside apoplexy, that produce paralysis, such as tumors, injuries caused by violence, cold, the action of poisons, excessive or improper indulgences, derangement of the digestive functions, etc. When palsy occurs without being preceded by apoplexy, its approaches are generally gradual, and connected with some appreciated derangement of the health.

A gentleman was under my care last summer, with a decided paralysis of the entire right side, resulting from derangement of the chyloporietic viscera, in whom the disease came on so gradually,

that he was unable with distinctness to designate the time of its first appearance. Another individual, an elderly gentleman, was under my direction the same season, with a paralysis that had been induced by injudicious perseverance in cold shower bathing. Although this was an unequivocal case of hemiplegia, barely enabling the patient to drag his leaden-like limbs along, it was preceded by no apoplectic shock, the gentleman being quite conscious of the occasion and progress of the attack. There are other cases in which the loss of power over the muscles takes place instantaneously, although not preceded by a distinct apoplexy.

The number of paralytics that resort to the waters of Sharon are large, and their success from the use of the waters has been various. Cases resulting from dyspeptic depravities are oftener cured than those from any other cause; but in almost every case, some amendment of the general health takes place, notwithstanding the paralysis may not be removed. Warm or hot sulphur baths are useful in connection with the water.

CHRONIC DISEASES OF THE CHEST, OR BREAST COMPLAINTS.

The public generally, and no portion of it more than valitudinarians themselves, are prone to be

exceedingly loose, undefined, and inaccurate in drawing distinctions between the different and dissimilar diseases that occasionally affect the same organs of the body. This is especially the case when such diseases have one common generic name; as, for instance, the name of breast complaint, which, by a comprehensive and sweeping application, is made to embrace, not only tubercular consumption, a disease of serofulous origin, and generally, if not uniformly, incurable, but also a large number of other affections of the breast, whose nature and termination are altogether dissimilar, and none of which, from their peculiar pathology, ought to be regarded as necessarily incurable. The same want of discrimination that confounds diseases affecting the same organ, and of the same generic name, is prone, as might be expected, to confound the practice appropriate for their cure. This is constantly found to be the case in reference to the use of the Sharon Sulphur Waters in breast complaints.

Pulmonary consumption (*phthisis pulmonalis*) has, to an alarming extent, become a disease of our country, and especially in the more northern and north-western portions of it; yet, notwithstanding its frequency, it is unquestionably true, that many diseases, accompanied by wasting of the body,

hectic fever, cough and mucous expectoration, are often classed with it, both by friends and medical attendants, where no scrofulous taint lurked in the constitution.

It is often embarrassing, even to the most experienced physician, to decide, with clearness, whether the lungs are the primary seat of disease, or whether they are merely the seat of a sympathetic irritation originating in some other organ. Nor can the practitioner always, with more than problematical conjecture, decide as to the existence or condition of tuberculous formations. But whatever may be the medical opinion as to the precise pathology of the disease, if the hectic flush be upon the cheeks, the vermilion upon the lips, the burning heat in the palms of the hands and soles of the feet, with evening fever or cold colliquative sweats, connected with hollow, pale, languid countenance, sharpened features, purulent expectoration and progressive emaciation, constituting the ever present symptoms of phthisis pulmonalis, the use of the water ought to be withheld. The symptoms just enumerated are those that distinguish tubercular consumption in its ultimate or matured stage, and in which the use of the water would prove injurious; but in no stage of formed, or forming tubercles of the lungs should it be relied upon as a remedy.

But it by no means follows, either from sound reasoning in the premises, or from observation and experience, that the want of adaptation in the waters to tubercular consumption, proves their want of adaptation to other forms of breast complaints. On the contrary, we know that the very best effects have often been derived from their use in various cases that seriously implicated the lungs.

Caution, however, should be exercised in submitting breast affections to the use of the Sulphur Water; and where doubts exist as to the nature of the case, a careful exploration of the chest should be made, and the best professional opinion elicited as to its true pathology. If tubercles in a mature or immature state are found in the lungs, prudence dictates the avoidance of the water, but if there be no tubercles, and no febrile excitement, the water may be employed without fear, although there may be cough, mucons expectoration, and other symptoms evidencing a morbid determination to the lungs.

I might give numerous cases illustrating the safety and success of the water in several forms of breast complaints, unconnected with a scrofulous diathesis or tubercles, but I will give one only, and that because it is of very recent occurrence, and happened in the person of an intelligent young

physician of my acquaintance. Dr. H., of C., had been suffering for more than two years with an affection of the lungs, during which time he has had several hemorrhages, with two distinct attacks of apoplexy of the lungs, requiring, in each instance, active treatment for his relief. One of these apoplectic attacks, attended with hemorrhage, had occurred two weeks before I saw him. On his arrival at the Springs, his pulse was 115 beats a minute, sense of fullness about the chest, with restlessness and general nervous excitability. I discouraged him from the use of the waters, under the apprehension of an increased excitement from their use, both in the vascular and nervous system, and advised him to visit the Virginia Springs, as offering a safer remedy. He disliked to make the journey, and determined to remain a few days at Sharon without using the water, and then return home. Under this state of things, and as he was a physician, and could watch his own case intelligently, I advised him to make a careful trial of the water in its unguaseous form, enjoining it upon him to discontinue its use if he found it to increase his pulse, and to persevere if the force or frequency of the pulse was reduced. The experiment was most fortunate, his pulse was reduced day by day, until it came down to its natural standard, the

sense of fullness in the chest disappeared, the nervous excitement was assuaged, and in every respect the amendment was clear and unequivocal; not evanescent, but progressive, and, I believe, permanent.

It is proper to state that Dr. H. made several attempts to take the water fresh from the Spring, but always found it too stimulating, and was forced to return to the ungaseous water.

It would be impossible, without going into a very tedious dissertation on the nature and causes of the various diseases of the chest (and which would be foreign to the objects of this work), to set forth, with such clearness as would be useful to the invalid, the various forms and modification of breast complaints for the cure of which the Sharon Water may be safely used. I shall allude here to but one of these forms, and to that mainly because it is of very common occurrence, and not unfrequently mistaken for genuine consumption. I shall take the liberty of calling this form of disease sympathetic consumption, because this name will more clearly convey a correct idea of its character, than any other I could give it.

Sympathetic consumption, although not peculiar to, occurs most frequently in persons of some constitutional disposition to phthisical complaints. It is the result of the body, and more commonly from

a diseased stomach or liver. The great par vagum nerve, common to both the stomach and lungs, affords a ready medium of sympathy between those two important organs. In protracted cases of dyspepsia, the stomach often throws out morbid influences to the windpipe and surface of the lungs, occasioning cough, mucous expectoration, pain in the breast, and many other usual symptoms of genuine consumption. So completely, indeed, does this translated affection wear the livery of the genuine disease, that, as before remarked, it is often mistaken for it. This form of disease comes often under my notice at the Springs, and I frequently witness the happiest result from the employment of the water in such cases; and the more so, because its beneficial effects resolve a painful doubt that often exists in the mind of the patient as to the true character of his disease.

Bronchitis is often met with at all our Watering Places, sometimes as a primary affection of the bronchia, and often in connection with other diseases. Of late this has become an exceedingly common disease with the clergy of our country, so much so as eminently to demand an investigation into the peculiar causes that render this valuable class of men so subject to its influence. Such an investigation would not only be highly interesting

as a curious subject of pathological inquiry, but also might be valuable by enabling the clergy to avoid the exciting and predisposing causes of the malady. It is not our purpose to enter into this investigation, it would be foreign to the objects of this work, but merely to observe, for the benefit of those thus afflicted, that the Mineral Waters of this region afford encouraging prospects of relief. We occasionally meet with cases that are relieved at this place, and similar results occur at all Watering Places.

CHRONIC DISEASES OF THE SKIN.

The reputation which Mineral Waters have obtained in the treatment of skin disease is based almost entirely on their efficacy in a single well-defined class of those diseases, *i. e.*, the dartrous or herpetic. These diseases, according to Mr. Hardy, are distinguished as follows: We call dartres various non-contagious elementary lesions of the skin, often hereditary, reproducing themselves in an almost constant manner, presenting itching as a chief symptom, always disposed to invade new regions, habitually chronic, and in which there is no cicatrix left after cure, although there may have been ulcerations. In persons who are subjects of the dartrous or herpetic diathesis the cutaneous

surface is usually dry, and perspiration does not take place readily. They generally eat freely. The skin is often the seat of itching, even in the absence of eruption, and is exceedingly susceptible; slight excesses in taking liquor, drinking coffee, certain articles of food, as shell fish, lobsters, or crabs, irritant frictions, or the application of a plaster, developing cutaneous eruptions. But not only is the skin the seat of dartrous maladies, there are also various affections of the mucous membrane, embracing granular, sore throat, tartre of the nose, certain asthmas, chronic bronchitis affections, and catarrhal disorders of the genito-urinary organs. It is a singular fact that in some cases the sudden disappearance of an external manifestation of this diathesis, eczema, for example, is followed by an attack of bronchitis, and on the subsidence of the bronchitis the eczema returns. In some women the cure of eczema is immediately followed by leucorrhœa. Similar results sometimes succeed the disappearance of psoriasis. The skin diseases which belong to this diathesis are eczema, lichen, psoriasis, and pityriasis. The different forms of eczema are sometimes called moist dartres, while the others are termed dry or scaly dartres. These eruptions are all chronic in character, perpetuating themselves indefinitely for months and years.

ECZEMA.

Humid scale or tetter is one of the most frequent skin diseases. It is characterized by the development of small vesicles and vesico-pustules, or by a red and thickened epidermis, from which there is a more or less abundant serous or sero-purulent secretion, which may form crusts and terminate by a scaly desquamation. The eruption is accompanied by excessive itching. Though a chronic disease it may sometimes run its course in six or eight weeks, to re-appear, however, in a few months or a year, the person suffering from it never feeling sure of freedom from an attack. There are many varieties of the disease, named according to the aspect, configuration, and location of the eruption. Impetigo is one of the most frequent forms. In the treatment of this malady Sulphur Waters often prove efficient, especially those of the sub-division known as Saline Sulphur Waters. In those cases, however, which present acute symptoms during the invasion, such as excessive fatigue, headache, pain in the back, and fever, Mineral Waters should not be employed. Those waters which are highly mineralized should always be used with care, because of the irritation frequently produced. The waters are used internally and in the form of baths. After

having taken a number of baths all the local manifestations of the disease are often increased, but on suspending or moderating the baths the irritation is allayed, to be again excited by their use. The patient may quit the baths despairing and discontented; the eczema is lighted up once or twice afterward and thence ceases. In other cases, however, the eruption gradually disappears under the use of the waters without occurrence of irritative phenomena. In order to obtain permanent relief from this malady it is usually necessary to resort to the Springs for several successive seasons. Not all cases, however, are susceptible of cure, though amelioration may always be anticipated.

LICHEN.

This excessively chronic malady is characterized at its commencement by clusters of papules, surrounded by a red halo. This halo finally disappears, leaving the skin rough, thick, and seamed. The seat of the eruption is usually intensely itchy, and upon it there are small crusts or minute scales. The waters most suited to the treatment of this disease are the Sulphur and Saline Sulphur. In certain cases complicated by gastralgia, Alkaline Waters prove valuable. The continued use of the waters in the form of baths is a necessity, and in

some instances it is desirable to push the treatment until the bath-eruption, la pousse, is established, and a cure by substitution inaugurated.

PSORIASIS.

Dry scale, or scaly tetter, is characterized by thick, dry, white, shiny scales, the skin beneath being dry, much thickened, of a dull-red color, and the seat of more or less itching. When the eruption is of long duration the skin is frequently seamed and cracked. The patches of the eruption are various in form, and on whatever part of the person they occur they will also be found, as a rule, in the vicinity of the elbows and knees. In this, as in all dartrous maladies, the Sulphur Waters are the most efficient, used internally and in the way of baths. On this point Hardy expresses himself thus: "In fine there is a remedy which should serve to confirm the cure, and which sometimes alone suffices to produce a cure in cases where all other means have failed, in psoriasis-inveterata, for example, I mean Sulphur Waters."

PITYRIASIS.

The most frequent manifestation of this disease is that occupying the head and known as dandruff. It is only when it exhibits itself on other parts of

the body that Mineral Waters are of much avail. It is the mildest exhibition of the dartrous diathesis, but exceedingly rebellious to treatment. Sulphur Waters are those that should be employed. We have given the dartrous maladies in which Mineral Waters are eminently beneficial. Besides these diseases there are various affections of the skin, due to scrofula or syphilis, in which Mineral Waters prove efficacious.

The sympathy existing between the surface of the body and the large internal organs, particularly the stomach and liver, has long been known and appreciated by medical men. The celebrated practice of Abernethy, of directing his remedies to the stomach and bowels for the cure of cutaneous diseases, was based upon a knowledge of this sympathy. Dr. James Johnson, of London, in treating of the morbid sympathies of the organs, remarks, "that in cutaneous and eruptive complaints, an extensive class of diseases, whose treatment has hitherto been very puzzling, the stomach, in company with the liver and intestines, sympathizes to an extent that is little imagined;" and adds, "that from the midst of the most inveterate of these there is scarcely one that is not more or less connected with derangements of the above-mentioned organs, but particularly the liver, and consequently

under the control or influence of remedies directed to them.

I have very generally observed in the administration of Sulphur Waters for cutaneous diseases, that just in proportion as the great abdominal organs become altered, any very decided amendment in such cases, especially if they be of long standing, until the water has exerted its sanitary effects upon those organs.

The warm sulphur bath is a valuable assistant to the internal use of the waters in cutaneous diseases, and should be daily employed after the water has begun to show its alterative effects upon the liver and bowels. It is often exceedingly gratifying to residents at the Springs, to witness the progressive disappearance of cutaneous eruptions and ultimate recovery, in the course of the season, of persons who come there with unseemly affections of this kind.

In ill-conditioned ulcers of the extremities, which are most generally found connected with some general depravity of the constitution, the water, in a general way, displays very fine effects. In such cases, we prefer the water to be so used as to make decided impressions upon the bowels and skin for a few days, to be continued afterward in smaller and less operative quantities.

RHEUMATISM AND GOUT.

Next to diseases of the abdominal viscera, rheumatism is most frequently met with at our Watering Places.

This is a disease so familiar to every one that little need be said concerning its peculiarities. It is well known that acute may eventuate in chronic rheumatism, and that those who in early life have been afflicted with the former are very liable, as years advance, to become subjects of the latter. Of chronic rheumatism there are three varieties; that ordinarily met with is known as chronic articular rheumatism. In this malady one or more joints are the seat of more or less intense pain for months or years; a pain which is increased by motion or pressure. The joints may be swollen, but there is seldom heat or redness. After the disease has continued a long time, the joint may become stiffened, a result due, not only to thickening of the adjoining structures, but also to want of motion. A second form of rheumatism is called deforming rheumatism. It is seldom a result of acute rheumatism, and is more frequently observed in females than males. It usually attacks the joints of the hand and foot, invading them one by one. The joint attacked is the seat of almost continuous pain,

though it is not often severe. It becomes gradually enlarged, and, on close examination, it will be found that the extremity of the bone is increased in size, and, in some instances, a bony formation has occurred within the joint, uniting the opposite synovial surfaces. The fingers at the same time become permanently flexed, and frequently a slight dislocation occurs, which, when the hand is considerably involved, gives a distorted and knotty appearance. The joints of the hand most frequently attacked are those of the first, middle and ring finger, while the thumb and little finger are frequently untouched. In the foot, the great toe is especially the seat of the disease. The disease is not, however, limited entirely to the hand and foot. Sometimes the hip-joint is affected by preference. A peculiarity of the disease is, that it almost invariably attacks the corresponding joints on the opposite sides of the body at the same time. This form of rheumatism should be distinguished from the enlargement of gout, with which it is often confounded. In malformation of the joint from gout there are chalky deposits of urates, while in this disease the appearance of the joint results from osseous enlargement of the extremity of the bone. In gout the lower extremities are chiefly affected, while in this disease it is the upper. Women are

most frequently the subjects of this malady, while gout principally occurs in men.

A third form of chronic rheumatism may be mentioned, termed muscular rheumatism. This form, as its name implies, affects the muscles and sheaths. It is a much milder form than either of those described, and seldom occasions permanent stiffness or contractions. The treatment applicable to the different forms of chronic rheumatism does not vary materially. In all, the practice at the present day is to administer stimulants and tonics. According to recent physiological discoveries there is a loss of natural vitality; therefore, the stimulant effect of Sulphur Water internally, and in the use of warm sulphur baths, our greatest success lies. The temperature of the baths need not be high, from 95° to 100° Fahr. is sufficiently warm. When the rheumatism is of the ordinary chronic articular kind, the duration of the bath should be about fifteen minutes at first, and the time may be gradually extended till, toward the termination of the treatment, the patient may remain an hour or more. A course of baths usually consists of thirty in succession; and, if these are insufficient, it is best to suspend their use, to be again resumed a few months later. A blanket-sweat after the bath is an exceed-

ingly valuable auxiliary. Particular care is necessary that cold be not taken after the bath.

In cases of deforming rheumatism and chronic articular rheumatism, complicated with stiffening of the joints, baths of the temperature mentioned should be used, but the use of the hot douche should be added. The temperature of this may vary from 106° to 120° Fahr., according to the case and the effect produced. In deforming rheumatism, Trousseau also recommends douches of hot sand as efficacious in promoting resolution and subduing pain. He says: We should have the patient plunge the affected part in hot sand, or let the sand fall upon it at as high a temperature as possible. The patients complain of a painful sensation of burning; nevertheless we can always, by the aid of the thermometer, graduate the temperature according to the degree of heat tolerated by each patient. This temperature may be from 140° to 158° Fahr. The douches, or local baths of hot sand, should be repeated from two to three times per day, and during one or two hours. It is important that the sand be maintained at the same degree of temperature, a condition easy to obtain, as the sand cools slowly, and is always easily replaced when it commences to cool. In following this rule in the usage of hot sand the patient soon obtains notable relief, and it

is easy to perceive a rapid diminution in the articular engorgements. One distinction may be made in the use of hot or thermal waters in rheumatism. It is this: Rheumatics are divided into two classes, those of the lymphatic temperament and those of the nervous. In the former, waters rich in the sulphurets have seemed to produce the best results, and baths of the higher temperature are usually indicated, while in the latter, the nervous temperament, waters containing but a small proportion of constituents and of moderate heat are preferable. Gout is the malady of *bon vivants*, those who indulge largely in the pleasures of the table, and inherit a tendency to the affection. There are several forms of the disease; in acute gout the paroxysms are attended with excessive pain. In chronic gout the attacks are accompanied with less pain and fever, but may continue for weeks and months, and several joints may be attacked at the same time; this form, also, is frequently accompanied with chalky deposits of urates in the joints! The anomalous or atonic form is one into which persons, previously the subjects of acute gout, fall; an enfeebled condition, accompanied by muscular weakness, dyspepsia, excessive perspirations and increased sensitiveness; and slight errors in diet, excitement, exposure to cold, or changes of weather

produce severe pains in one or more joints, resembling the beginning of acute attacks of gout, but which is never fully developed. There may also be gout in the stomach, in the heart, in the brain and other internal organs, but such complications are rare. An attack of acute gout is one of the most painful affections which the human body endures. A person of full habit and easy circumstances, a free liver, complains for some days of diminished appetite, of somnolence and of inaptitude of the mind; usually of jovial disposition, he becomes irascible, and the urine is found to deposit a red or brick-dust sediment. On the day of the attack, however, these preensory symptoms subside. He retires at night and sleeps tranquilly, but toward two or three o'clock in the morning he awakes with a sensation of pain in one of the great toes. He changes the position of his foot, hoping to obtain relief, but no amelioration follows; the pain increases slowly but surely in severity, and finally, the touch of the covering is unbearable, till the slightest jar of the room or bed aggravates the pain, which he compares to a nail being driven into the joint, to tearing asunder of the ligaments, to the elinching of a vise at the utmost pressure; in short, exhausts the vocabulary of painful comparisons; the skin is hot, the pulse bounding. Toward

morning the pain moderates, and when day dawns he feels little or no pain, and passes a comparatively easy day; the seat of the pain is red and swollen. Toward evening, however, the pain recommences, and during the night the previous tortures are repeated, again to subside in the morning; and each night, for as many as eight nights it may be, these pains recur. In this disease there is always a condition known as the "uric acid diathesis;" the blood is charged with uric acid, but whether it is the primary cause or only a phenomenon in the course of the disease is unknown — the burden of testimony points to the excess of uric acid as the cause; this excess, however, depending on a disturbance in the processes of assimilation, or, in accordance with recent investigations, a want of oxygenation, the excess of food that cannot be assimilated produces uric acid, which is the irritant. The patient seems to do well as long as the uric acid is freely excreted by the kidneys; but when the uriferous tubules are plugged by deposits of urates, and the flow of urine is impeded, an attack of gout is the result. In treating this malady by Mineral Waters, an imperative rule is, that waters should only be used during intervals of the attack, and as far distant from a preceding or succeeding attack as we can determine.

METALLIC POISONING.

Workers in various metals are subject to various symptoms, both of the digestive and nervous systems, due to the slow absorption of the metal through the skin and lungs, producing a condition of chronic poisoning. Painter's colic is an ordinary form of this poisoning by lead, while that form of paralysis, known as "wrist drop," is a further development of the disease. We may also class certain cases of syphilis that have been overtreated by mercurials under this head.

The waters which prove most efficacious in these conditions are those of the sulphur class; if they be thermal, so that the elimination of the metal may be aided by hot baths, so much the more are they appropriate; as a subsequent measure in anæmic and debilitated patients, the Chalybeate Waters will frequently prove beneficial.

SCROFULA.

In this malady, or class of maladies, the best authorities bear uniform testimony in favor of the value of Mineral Waters. There are two classes of scrofulous persons—those of slender frame, with accelerated pulse, and over-active nervous system, and those who are clumsy and thick-set, with enlarged nose and upper lip, and in whom

the adipose tissue is strongly developed, the heart-action slow, and the nervous system obtuse. It is to this last class that Mineral Waters are best adapted. Whenever we wish to remedy profound and confirmed scrofulous affections, such as show the constitutional dyscrasia in the most unmistakable manner, it is to waters strongly mineralized by chloride of sodium, that we must resort. Sulphur Waters are deemed especially applicable to those forms of scrofula, accompanied by lesions of the skin, known as scrofulides. For these scrofulous diseases of the skin, Hardy tells us, in the form of baths, Mineral Waters possess a happy influence; the Sulphur Waters, and above all, those which are very rich in sulphur; good success is also obtained by the bromo-iodated waters.

SURGICAL DISEASES — ANCHYLOSIS.

This term is applied to stiffness or immobility of a joint. There are two kinds, the true and the false. In the former, adhesions of bone form between the articular surfaces; in the latter, there are no adhesions, but the ligaments and tendons are thickened by deposits, or have lost the power of motion by want of use. The conditions which produce false ankylosis are met with when a limb has been confined in an apparatus for a long time

after fracture. And the same result may follow after dislocation or sprain.

In each instance there is usually an inflammatory deposit, resulting from the original injury. The thickening of the fibrinous and tendinous structures, which accompanies rheumatism, frequently produces a similar ankylosis. The want of use which follows paralysis often leaves a joint in a condition of false ankylosis.

From whatever cause false ankylosis occurs, decided benefit, or cure, is always to be expected from the appropriate application of Mineral Waters. The waters to be preferred are thermal waters, of the sulphur or saline class. A high degree of thermality is essential. The waters are to be employed in the form of warm baths to the body, and hot douches to the joint. The douches should be accompanied with shampooing and friction. The internal use of the water at the same time probably aids in procuring absorption of exudations.

Mineral mud-baths are much used abroad in these cases, and are supposed to aid the absorptive process.

CONTRACTIONS.

This term is here used to indicate the shortening and rigidity of muscles, often rendering a limb

almost useless, and causing deformity. It arises from a variety of causes, such as rheumatism, scrofula, gout, syphilis, or external injury. In the treatment of this condition by Mineral Waters, regard is to be given to these causes; but the especial virtue of the waters depends on the warm baths and hot douches, such as are found at thermal springs. That thermal water, therefore, should be selected, which, by virtue of its constituents, especially acts on the originating cause; hot sand-baths are also thought to aid in these cases.

HYDRORTHROSIS.

This term is applied both to dropsy of a joint, and that severe tubercular disease known as white swelling. Dropsy of a joint may arise from external injury, or it may depend on a rheumatic, scrofulous, or gouty constitution. Sometimes it is a result of syphilis. When the condition is chronic, Mineral Waters prove valuable in the form of warm baths and douches. Sulphur Waters are especially valuable, which answer the constitutional indications.

White swelling is an exceedingly formidable disease, affecting the joints. It occurs chiefly, if not alone, in scrofulous subjects. The malady is usually sub-acute in its progress, and therefore not adapted to the treatment by Mineral Waters.

When peculiarly chronic in its course, the general health may be improved by a resort to Springs, and absorption may be aided by baths and douches. These applications should, however, be employed with extreme reserve, and by no means relied on alone.

CARIES.

The ulceration of bone is usually the result of scrofula or syphilis, though there may have been some external injury as the exciting cause. During the inflammatory stage, Mineral Waters should not be used; but, when this has passed away, great benefit may be derived from the employment of appropriate waters. The water is taken internally, applied locally in the way of fomentations, and injected into fistulous tracts. Baths and douches are also used. The treatment should be conducted with care, lest too great irritation be produced.

ULCERS.

By this designation we refer to chronic ulcers, which sometimes endure for months and years. It frequently occurs that these ulcers are healed under the use of Mineral Waters.

When they depend on scrofula or syphilis, we may readily expect such results from waters adapted to those conditions. In other cases, where there

is no marked constitutional indication, such as varicose ulcers, the internal and local application of waters often has a marked influence, causing an irritable or indolent ulcer to form healthy granulations, and finally heal, although in the case of varicose ulcers, there is always probability of a return. So much reliance is placed on Mineral Waters in these and other affections, that the military establishment of France possesses five hospitals, at as many different Springs, for the benefit of soldiers. Austria has a like number. Prussia sends her sick soldiers, in need of Mineral Waters, to Toplitz.

MERCURIAL DISEASES.

In that enfeebled and peculiar condition of the system resulting from the long protracted or injudicious use of mercury, the White Sulphur Water has displayed its happiest effects. The extraordinary powers of this water in correcting the injurious constitutional and local effects of this drug upon the system cannot be appreciated too highly by the medical profession or the public. After long experience with the water in this peculiar form of disease, we have no hesitation in observing that if called on to designate a particular affection or state of the system in which the agent is most beneficial, we would not hesitate to name mercurial

diseases, because we regard the water in such cases as a specific agent, and as almost certain to bring relief where other known agents would not. This we know is strong praise, and nothing but long and successful observation could induce us to award it. Of the many patients afflicted with disease from the abuse of mercury — and many of them in a state of great wretchedness — who annually resort to this place for relief, we have rarely seen a case, in which the water was properly used for a sufficient length of time, that was not either cured or so relieved as to evidence the triumph of the remedy. The salutary action of the water in such cases may be considerably expedited by uniting with it some of the preparations of sarsaparilla or of iodine. The warm Sulphur bath also, in such cases, comes in as an important auxiliary. The patient laboring under this anomalous affection is required to exercise fully as much patience in the use of the water as is demanded in any other case. To make it fully successful in bad cases, from one to three months' use of it will generally be required, occasionally intermitting it for short periods during this time.

The syphilitic eruptive diseases, or syphilodermata, which embrace many of the regular forms of eruptive disease, are very successfully treated by Sulphur Waters.

CHAPTER VI.

THE SKIN.

INTRODUCTORY to treatment of the subject of baths, we give a description of the skin, one of the most important emunctories for purification of the blood, and that which is directly subject to the influence of bathing. —

Anatomically, the skin consists of two layers: the external, called the epidermis, cuticle, or scarf-skin, and the internal, known as the cutis vera, or true skin. The true skin is a dense, elastic tissue, permeated in every direction by blood vessels, nerves and lymphatics. Within its substance are the sebaceous follicles, usually discharging their oily contents beside the point of emergence of the hair. The perspiratory glands are also seated here. The papillary layer of the true skin consists of numbers of small conical prominences, quite irregularly distributed. The papillæ, when aggregated in masses and arranged in rows, constitute the ridges and furrows that may be seen on the palm of the hand and the sole of the foot. The papillæ are supplied with a large number of nerves and

blood vessels, rendering them exceedingly sensitive. The true skin varies in thickness in various parts of the body, being most dense on the back, outer sides of the limbs, and the palms of the hands and soles of the feet. This thickness may arise from different causes, sometimes being due to an increase in the cavian, the substratum of the true skin; at others to an accumulation of papillary eminences, to subserve the sense of touch when great delicacy of feeling is required. We may form an idea of the extreme vascularity of this tissue, and the infinite number of blood vessels with which it is permeated, from the fact that the point of the finest needle can nowhere penetrate the surface without blood being drawn and a sensation of pain produced. The epidermis, or cuticle, is a defensive covering for the sensitive surface of the true skin, being accurately moulded to the papillary layer. It varies in thickness. When it is exposed to continuous friction or pressure and atmospheric influence, it becomes thick, hard and horny in texture, while that which is in contact with the papillary layer is soft and cellular in structure. The cuticle is formed by the exudation of cells from the papillary layer, the outer cells falling off as scurf, in scale-like particles. The color of the skin is due to pigment cells found in the deep layer of the

epidermis. The color of this pigment varies in different nations, and gives the characteristic hue. The epidermis is pierced by the excretory ducts of the sebaceous follicles and sweat-glands, which discharge their secretions upon its surface. The sweat-glands are small, round, reddish bodies, consisting of one or more exceedingly small convoluted tubes, twisted and wound together in the most intricate manner. These characteristics are only perceptible under the microscope. Surrounding these glands are numerous blood vessels. From them proceed the excretory ducts, which terminate at the surface of the epidermis. It is these glands that secrete perspiration, a watery, saline fluid. Although each of these glands is so minute, when we consider them in the aggregate we shall arrive at surprising figures. Mr. Wilson tells us as follows: To arrive at something like an estimate of the value of the perspiratory system in relation to the rest of the organism, I counted the perspiratory pores on the palm of the hand, and found 3,528 in a square inch. Now, each of these pores being the aperture of a little tube of about a quarter of an inch long, it follows that in a square inch of skin on the palm of the hand there exists a length of tube equal to 882 inches, or $73\frac{1}{2}$ feet. Surely such an amount of drainage as 73 feet in every

square inch of skin — assuming this to be the average for the whole body — is something wonderful, and the thought naturally intrudes itself: What if this drainage was obstructed? On the pulps of the fingers, where the ridges of the sensitive layer of the true skin are somewhat finer than on the palm of the hand, the number of pores on a square inch a little exceeded that of the palm; and on the heel, where the ridges are coarser, the number of pores in the square inch was 2,268, and the length of tube 568 inches, or 47 feet. To obtain an estimate of the length of tube of the perspiratory system of the whole surface of the body, I think that 2,800 might be taken as a fair average of the number of pores in the square inch, and 700, consequently, as the number of inches in length. Now, the number of square inches of surface in a man of ordinary height and bulk is 2,500, the number of pores therefore 7,000,000, and the number of inches of perspiratory tube 1,750,000, that is 145,833 feet, or 48,600 yards, or nearly 28 miles.

The sebaceous glands are small, sacculated, glandular organs, found in all parts of the skin, but most frequently occurring in the face. Their orifice opens most frequently into the hair follicles. The purpose of the oily secretion which they discharge is to lubricate the surface of the body, keep-

ing the skin soft and pliable, and protecting it from the external air; it also gives gloss and softness to the hair. This fluid is much more abundantly secreted by the races that live in warm climates than those that inhabit cold ones. Within the orifice of the sebaceous tubes a curious parasite, called the entozoon folliculorum, is frequently found. It occurs in great numbers in the inhabitants of large cities, whose skin is inclined to be torpid in function.

FUNCTION OF THE SKIN.

In order that we may more clearly comprehend this, it is well to remember that the skin is continuous with the mucous membrane at the various orifices of the body, the mouth, nose, etc., and that there is a striking similarity in the formation of the two structures. Indeed, we may term the one the external lining, the other the internal; the being man, with the various tissues of blood, nerve, muscle and bone being formed and nourished between these two linings, the mouth, lungs, stomach, intestines, liver and kidneys being but adaptations of this mucous membrane to the offices of assimilation and depuration; and in the same manner, the skin performs these offices, though not in such a multiplicity of ways.

ABSORPTION.

Undoubtedly the skin acts more readily by exhalation and secretion than absorption; but that it is absorbent in action is certain, though the subject has been considerably discussed and many have taken the negative side of the question. For most fluids and substances capable of solution by the liquids of the body the skin is absorbent. It is related by Theophrastus that the odor of strongly-scented cataplasms, when placed over the stomach, is detected in the eructations. The treatment of various diseases by inunction with medicated ointments is practiced at the present day with perfect confidence and certainty as to absorption of the drug. And when the dry epidermis is removed by a blister, and the cutis vera exposed, medicines applied produce similar effects in doses but little larger than when they are made to act directly upon the gastric mucous membrane. There has been much doubt whether the skin absorbs water or medical substances dissolved in water. Dr. Dill, of Edinburgh, concluded, from a series of experiments, that the body generally, but not uniformly, increases in weight in a warm bath (86° to 102° Fahr.). Dr. James Murray obtained similar results in baths from 88° to 104° Fahr., that is, the body

usually gained in weight; and he showed by tests applied to the urine that gallic acid is absorbed by a person immersed in a bath containing infusion of galls. Westrumb found the pressiate of potassa in the blood and urine of persons who had used a foot-bath containing this salt; and the urine, as well as the serum of the blood, was colored brown when the ormes were kept immersed in an infusion of rhubarb. The more recent experiments of Durian and Clemens tend to reconcile the apparent contradictory results that have been sometimes obtained. Prof. Alfred Stille, of Philadelphia, sums up the observations referred to in these words. By these experiments it is rendered clear that for every person there is a temperature at which the body, immersed in water, neither gains nor loses in weight, while on the one hand above this point it exhales more than it absorbs, and therefore becomes lighter, and, on the other hand, below this point it absorbs more than it exhales and grows heavier. Thus, in a bath of from 72° to 77° Fahr., the skin absorbs on an average 248 grains in a quarter of an hour; 442 grains in three-quarters of an hour, and nearly 700 grains in an hour and a quarter. Recent researches of Jamin throw doubt on this point; he affirms that the loss is large between 75° and 82° Fahr. On the other hand, in baths at an average

temperature of 97° Fahr., the body loses weight at the rate of 744 grains in fifteen minutes, 1,271 grains in thirty minutes, and 2,054 grains in forty-five minutes. In a bath of 113° Fahr. the body lost more than a pound in weight in the course of fifteen minutes, 1,271 grains in thirty minutes, and 2,054 grains in forty-five minutes. In a bath of 113° Fahr. the body lost more than a pound in weight in the course of fifteen minutes. By this simple statement it becomes evident that, even in the case of water, exhalation is a more active function of the skin than absorption. The truth is that the scarf skin is for the protection of the absorbent's vessels, and it is only under certain conditions of temperature and friction that absorption is admissible through this protective covering; the greatest function of the skin is transudation.

TRANSPIRATION.

The secretion of oil by the sebaceous follicles, and its purpose of lubricating the skin have already been mentioned. The office, however, most worthy of notice in connection with this subject is that of perspiration—the elimination of carbonic acid and perspiration by the sweat glands. The ingenious calculation by which it is shown that the combined length of the sweat tubes, in an individual, is about

twenty-eight miles, has already been noticed. It may be asked, if these glands are constantly active, continually conveying their burden of perspiration to the surface of the skin, why is not that surface continually moist. We answer, because the fluid is eliminated so gradually that it passes off imperceptibly in vapor as rapidly as it is formed. However, we all know how, during vigorous exercise and the heat of summer, it is immediately seen on the surface in large beads of fluid. This fluid is composed mostly of water, but besides, we find carbonic acid, acetate of ammonia, phosphate of soda and lime, carbonate of lime, chloride of sodium, sulphate of soda, muriate of ammonia, and traces of iron and animal matter. The quantity thus exhaled has been estimated at about two and a half pounds per day larger than the amount given off by the lungs. It must not, however, be understood that all of this quantity is exhaled by the sweat glands and sebaceous glands; the larger proportion is the result of simple evaporation from the surface of the skin. The amount of discharge from the skin varies at different periods of the day, and under the varied conditions of our systems. Immediately after taking food the process is checked, but when digestion is fully established, it is most abundant. The conditions of the atmosphere exercise

a marked influence ; when it is hot and dry, then transpiration is exceedingly active, while a moist atmosphere has an opposite effect.

The skin also acts the part of a respiratory organ, by absorbing oxygen and giving off carbonic acid, thus aiding the lungs in this important interchange of the gaseous constituents of the blood. Indeed, respiration is performed by the skin alone in some of the inferior animals. If one of the higher animals, in which the skin resembles that of a man in function, be inclosed in a bag of caoutchouc, leaving the head only exposed, it soon dies, as though asphyxiated, the heart and lungs being found gorged with blood, and the temperature of the body sometimes as much as 30° Fahr. below the normal standard.

Reflection upon the offices of the skin, which are almost unknown to the multitude, will impress forcibly upon us the exceeding importance of the bath as a sanitary and medicinal agent. If this continued discharge of aqueous elements is checked, may it not throw upon the other eliminators, the kidneys, the lungs and the intestines, an excess of labor that will cause inflammation ? If the twenty-eight miles of drainage are obstructed, may not the pent-up, effete matter, engender disease and death ? Taking cold — the sudden arrest of the function of

the skin — is almost always followed by irritation of the mucous membrane of the lungs, kidneys and intestines, manifested by bronchitis and excessive discharge of urine, and even nephritis or diarrhœa. These results, from the sudden arrest of the functions of the skin, are only mentioned by way of illustration. There is a long list of diseases in which obstruction of the skin is an exciting cause. Bathing is not only essential to a healthy and prolonged existence, but, through the stimulation of the action of the skin, in this way we may remove various morbid products of the organism, which, by their accumulation in the system, are the source of disease.

DISEASES FROM INTERRUPTED FUNCTIONS OF THE SKIN.

Every organ of the body is liable to inflammation, or disturbance or suspension of the cutaneous functions. This interruption is usually superinduced by the sudden or prolonged impression of cold and moisture, and especially by their partial application, as in a current of air. To this agency we may refer anginosa or throat affections, catarrh followed by acute bronchitis, pulmonary consumption, pericarditis, inflammation of the stomach and bowels, uterus, etc., rheumatism and gout, and not unfre-

quently, fevers. Dyspepsia, with all its painful concomitants, is often kept up by the same cause. The operation of cold and moisture on the skin is rendered much more noxious when the impression suddenly alternates with either high solar or artificial heat, and when the skin is bathed in sweat after labor or other exhausting exercise.

SYMPATHY BETWEEN THE SKIN AND THE INTERNAL ORGANS

The sympathy between certain portions of the skin and the internal organs is worthy of attention. When the latter are diseased, the skin of the extremities is sometimes morbidly cold, and at other times burning hot, while the rest of the cutaneous surface preserves its normal temperature. In certain fevers the skin of the epigastric region conveys to the hand of another person a sensation of great heat, while that on the limbs is little changed in this respect. The skin of the inside of the limbs, of the chest and abdomen, and along the spine, is warmer and more delicate and susceptible than that of other parts. But there is no invariable connection between temperature and tactile power or touch, since we find that the skin of the extremities is generally a few degrees cooler than that of the trunk, though the delicacy of touch is incom-

parably superior in the former. As an organ of sense, and as connected with general sensation and volition, the skin is most powerfully affected in the portions covering the extremities; hence the benefits derived from stimulating and irritating applications to these parts when we desire to rouse the nervous system and restore it to its accustomed tone, as in cases of fainting, insensibility, stupor and the like. The connection between the organs in the cavity of the chest and the skin is such that impressions made on the portion of the latter lining the arm and covering the side below the armpit, have a strong influence on the lungs and heart. Exposure of this portion of the cutaneous surface, common in children and females from the absurd style of dressing, is a frequent cause of catarrh, croup and affections of the pleura. There is also a very intimate sympathy between the skin of the inside of the thighs and that covering the inguinal regions and the lower bowels and uterus. Where there is much susceptibility of these organs to disease, the skin should be well protected, in both sexes, by warm clothing. Every intelligent physician is aware of the effects produced on the genital and digestive apparatus by the application of blisters and other counter-irritants to the inside of the thighs. We meet with numerous evidences

of active sympathy between the skin and mucous membranes, including the organs lined by these latter, the lungs, digestive apparatus, with its glandular appendages, the salivary glands, the liver and pancreas, and the urinary organs, and, consequently, of the influence which it exerts over them, both in health and disease. A knowledge of the various and important offices performed by the skin in the animal economy must awaken our attention to the means by which they can be best preserved from disturbance or interruption. The primary organic conditions for this purpose are, a certain degree of activity of the circulation of the blood in the extended network of vessels, and of fullness of the nervous tissue, and especially of the papillæ of the cutis vera, or true skin; unless the first of these be secured, the requisite secretions cannot take place; the blood will fail to be purified by the removal of effete matter, and the whole system will in consequence suffer from disorder of all the functions.



INTERIOR GENTLEMEN'S BATH HOUSE.

CHAPTER VII.

BATHS.

Bathing as a Purifier of the Skin.

IT may be readily inferred from the description of the functions of the skin, that a large amount of excreted matter will accumulate on its surface in a short period, and give rise to effluvia, both offensive to the smell, and deleterious to the health of those coming within the range of its emanations, unless regular and thorough ablution be practiced. To what extent the air is thus contaminated in crowded assemblages is rendered painfully sensible in theatres, courts of law, public meetings, and in crowded churches, especially in the evening — to say nothing of fashionable parties and balls. Even in hospitals, with all their real and imputed discomforts as now arranged and managed, we rarely find so impure and deleterious an atmosphere as in any of the places of resort just mentioned, when crowded in the evenings. Fevers of the most malignant type have originated from the animal matters thus discharged from the

skin and lungs of a number of persons confined for any length of time in circumscribed space, with deficient ventilation.

A peculiarly offensive effluvium radiates from the bodies of individuals who have been thus crowded together, even for some time after bathing has been had recourse to. Individuals also, who, without being thus confined, have long neglected personal ablutions and change of garments, and have been addicted to the use of ardent spirits, are often so many walking sepulchres, whose emanations are far less tolerable than those of the dissecting room itself. Some persons, who would resent the imputation of uncleanness, deceive themselves into a belief that if they overpower one odor by another, and conceal these animal emanations by vegetable extracts and sweet waters, they fulfill all the requirements of the toilet. They have yet to learn the important lesson, that no essences, though each drop should be as costly as the grains of a diamond, can avail either to cleanse or to beautify, without the use of water, the universal fluid, the true panacea for all bodily impurities.

THE COLD BATH (70° FAHR. AND BELOW).

The primary phenomena of immersion in cold water are those of sedation; the more decided as

the water is colder. They are, diminished temperature and paleness of the skin, slower respiration and circulation of the blood, accompanied by panting and shivering. If the cold be great, or long protracted, a sense of suffocation and constriction at the pit of the stomach is experienced, the skin is corrugated, the breathing is labored and convulsive, speech difficult, the circulation is depressed, the lips and even cheeks become bluish, the muscles are painful and seized with cramps, and, unless relieved, the person will lose his life.

On coming out of the bath, and while exposed to the air, the sensation of cold is increased; but in vigorous persons, as soon as the skin is dry, re-action takes place, a warm glow spreads over the surface, the muscles play with ease and elasticity, the mind is clear, and the person exhilarated.

The cold bath is most frequently used as a tonic, and is only applicable to persons who have sufficient vigor to procure prompt re-action. In this way it is more often employed to perpetuate an already healthy condition, than to relieve disease.

For the anæmic and depressed, needing tonics, other resources must be sought. There seems an incompatibility between the tonic effect of a cold bath and the fact that the bath itself is actually a

sedative. This inconsistency, however, is only apparent. When we speak of the tonic action, it is only as a result, not as the immediate effect.

Cold applications are employed in an infinite number of ways in the treatment of disease. In fevers, the cold sponge bath is a palliative, so acting by abstraction of heat. Active hemorrhage, both external and internal, may frequently be controlled by cold applications; in the former acting directly, by contraction of the blood-vessels and tissues; in the latter, by reflex action, the sudden chill produced, as in hemorrhage of the lungs, by application of cold to the chest, causing contraction of the capillary blood-vessels. In acute diseases of the brain, the continuous application of cold is of great advantage, lessening temperature by abstraction of heat, and contracting the blood-vessels by direct action. Gout and rheumatism have sometimes been treated, in the acute stage, by application of cold to the affected part; but, though sometimes securing relief, the practice is not to be recommended, the cause of the disease still remaining in the system, ready to explode its force at some other point. Quite opposite to this is the action of the hot bath in this disease, which, by stimulating the excretory function of the skin, removes the cause.

As a guide to the use of the ordinary cold bath, we insert the following rules:

1. The most favorable time of day for taking a cold bath is on rising in the morning, or about noon.

2. The stomach should be empty when the bath is taken.

3. Exercise moderately before entering the bath and while in the bath; but the body must not be overheated on going into the water.

4. A cold bath should not be taken when fatigued.

5. The duration of a cold bath should not exceed five minutes.

6. The cold bath should be succeeded by friction of the surface, with a coarse towel or flesh-brush, till re-action is established.

7. If the cold bath is not followed by re-action, the duration has been too long, or cold bathing is not fitted for the individual.

8. The cold bath is not adapted to feeble or aged persons and infants.

9. Persons whose extremities or skin are usually cold should not use the cold bath.

10. Persons affected with organic disease of the heart should not take cold baths.

Baths between 70° and 85° Fahr. are denomi-

nated temperate, and from 85° to 92° Fahr., they are termed tepid. The latter range is that usually selected for the purpose of ordinary ablution. These baths abstract heat and lessen the frequency of the pulse in the same manner as the cold bath, though in a much less degree.

THE WARM BATH (92° TO 98° FAHR.).

This may be termed the luxurious bath, that which the weary or the invalid enters with pleasure, and quits reluctantly. Under its influence a sense of calm enjoyment and perfect tranquillity is experienced. Granville, in his glowing description of a bath in the Wildbad Waters of Germany, well describes these sensations.

After descending a few steps from the dressing-room into the bath room, I walked over the warm, soft sand to the farthest end of the bath, and I lay myself down upon it, near the principal Spring, resting my head on a clean wooden pillow. The soothing effect of the water as it came over me, up to the throat, transparent like the brightest gem or aqua-marine, soft, genially warm, and gently murmuring, I shall never forget. Millions of bubbles of gas rose from the sand and played around me, quivering through the lucid water as they ascended, and bursting at the surface, to be succeeded by

others. The sensation produced, as these with their tremulous motion just effluvia the surface of the body, is not to be described. It partakes of tranquillity and exhilaration of the ecstatic state of a devotee, blended with the repose of an opium-eater. The head is calm, the heart is calm, yet there is neither drowsiness, stupefaction, nor numbness.

The physiological effects of the warm bath are as follows: There is diminution in the frequency of the pulse, and a lessened number of respirations. The experiments of Marcard show that in baths of 96° Fahr. and below that temperature, the rigidity of the pulse is uniformly diminished. Dr. Lockette, of Virginia, in baths of 98° Fahr., found the pulse always reduced in frequency. In rare instances, it was slightly increased on first immersion, but in a short time it fell below the normal standard, and so continued. In this respect there is a difference in individuals as to the amount of diminution of the pulse-beats, those whose pulse is usually rapid and excited showing the most decided variation. From these facts, and those given under the remarks on cold baths, we deduce the law that in all baths of a temperature below the normal heat of the body, 98° Fahr., the pulse is diminished in frequency.

Warm baths act decidedly on the functions of the skin; absorption and exhalations are much increased. In baths the temperature of which ranges between 86° and 96° Fahr., the absorption of water and medicinal salts seems most active.

The prolonged use of the warm bath, for days and weeks in succession, produces an eruption on the surface of the skin and febrile conditions, continuing for several days, known among the Germans as the *bad-sturm*, or bath-fever. Formerly it was thought that the production of this critical fever was necessary to a cure; but this idea has been relinquished, and it is now usually considered as an indication of misuse of the bath, and a guide for diminishing the temperature, or lessening the duration.

The warm bath may be considered, therapeutically, as calming and restorative. The person worn out by prolonged mental or physical exertion, experiences in the warm bath a sense of quiet and relaxation, which is followed on quitting it, if the person do not remain too long, with a restoration of energy.

A dividing-line may clearly be drawn between the warm and the hot bath. To place the prominent points more definitely before the reader, the respective effects are shown in the following table:

*Warm bath, from 92° to 98°
Fahr.*

1. Calming and sedative.
2. Pulse decreased in frequency.
3. Respirations decreased in number.
4. Skin neither red nor congested.
5. Absorption and exhalation of the skin increased.
6. No determination of blood to the head.
7. Secondary effects restorative.

Hot bath, above 98° Fahr.

1. Exciting.
2. Pulse increased in frequency.
3. Respirations increased in number.
4. Skin red and congested.
5. Exhalation of the skin increased, and little or no absorption.
6. Determination of blood to the head.
7. Secondary effects depressing.

The warm bath is applicable to many diseases. It calms nervous excitement, and has been used advantageously in mania, chorea and hysteria. In nephritis it allays pain and aids the passage of calculi. Congestions and inflammations of the liver are also much improved by its use, in conjunction with other treatment. Conjoined with frictions and moderate exercise, it is also palliative in albuminuria. Dysmenorrhœa and amenorrhœa have been treated by warm baths from time immemorial. Chronic metritis is also subject to favorable influence by the warm bath. Many diseases of the skin are thereby rendered amenable to treatment, which otherwise baffle our best efforts. Sub-acute

rheumatism and gout may be treated by warm baths, and even the more decidedly chronic types may be subjected to them when the hot bath cannot be used.

The following rules are applicable to the warm bath:

1. The best time for taking a warm bath is during the morning hours, and in some instances before retiring to bed.

2. The stomach should be empty at the time of the bath.

3. The duration of the warm bath may be from fifteen minutes to an hour, and sometimes longer.

4. The warm bath is applicable to almost all conditions of health or disease, but persons affected with organic disease of the heart or lungs should be careful in its use.

THE HOT BATH (ABOVE 98° FAHR.).

The physiological effects of the hot bath are very different from those of a warm bath. During immersion in a hot bath the skin becomes red, the pulse is increased in frequency, the respirations are increased in number, perspiration breaks forth on the parts not immersed, exhalation of the skin is greatly stimulated, the mind becomes confused, and if too long continued, vertigo or even apo-

plexy may result. Dr. Lockette, of Virginia, whose pulse was 97 in a bath of 98° Fahr., tells us that in a bath of 111° Fahr. it rose to 153 beats in a minute, and that it produced confusion of thought, partial delirium, tinnitus aurium, an inability to speak, dimness of sight, an intolerable pain in his head, with a most painful desire to make water. His sensations were precisely such as they are in a violent state of fever. There were great redness of the skin and flushing of the face. On raising himself out of the water, he almost swooned, and, being now covered with blankets, sweated very profusely. The results of the experiments of M. Roston and M. Loude coincide with those obtained by Dr. Lockette. Liebermeister found the bodily temperature augmented by the hot bath. The extent to which exhalation of the skin is stimulated has been well shown by the experiments of Mosler, who proved that in hot baths of high temperature from one to two pounds' weight may be lost in the course of an hour. During a course of hot bathing a bath-fever sometimes occurs, similar to that described in treating of warm baths. There are constipation, a coated tongue, loss of appetite, nervous irritability, disturbed sleep, perspiration, palpitations and erup-

tions on the skin, and a temporary discontinuance of the baths is indicated.

The diseases in which the hot bath is remedial are chronic rheumatism, gout, and chronic diseases of the skin, especially those of a scaly nature, such as psoriasis, pityriasis, and lichen occurring in phlegmatic temperaments. In neuralgias, paraplegia and paralysis it is curative in a marked degree, especially when employed in the form of a hot douche. Dysmenorrhœa and amenorrhœa, associated with atonic conditions, are also favorably influenced by hot baths and douches. Enlarged and contracted joints are relieved by the same treatment. Engorgement of the abdominal viscera may be properly subjected to hot baths, and frequently with decided relief. In tertiary syphilis the hot bath often acts as an indispensable adjuvant to cure. The stimulant effect on the excretory function of the skin, combined with proper medication, seems to eliminate the venereal poison with great certainty and rapidity. When the hot douche acts favorably in neuralgia, paralysis and affections of the joints, it seems to do so by its local effect entirely. The blood vessels, nerves and lymphatics of the affected part are stimulated to renewed vitality, which on the one hand relieves pain, and

restores sensibility and motion, and on the other absorbs exudations and concretions.

Although hot baths form so potent a remedy, they should be employed with circumspection, and the effect closely observed from day to day. Venel asserts that at Canterets a Spaniard died of hemorrhage from prolonged stay in a hot bath, and Buchan relates the case of a man who was attacked with paralysis after the use of an excessively hot bath. The following rules will serve as a guide in the use of this bath :

1. The best time for taking a hot bath is during the morning.

2. The stomach should be empty, free from irritation, and the tongue clean.

3. The duration may be from five to fifteen minutes, and sometimes longer, according to temperature and condition.

4. The hot bath is more applicable to the middle-aged and old, than to young persons.

5. Plethoric persons should be guarded in the use of hot baths.

6. Those suffering from organic disease of the heart or lungs, or subject to vertigo, should not use hot baths.

7. The temperature of the hot bath usually employed ranges from 102° to 110° Fahr.

VAPOR BATH.

In this bath the atmosphere is loaded with hot vapor. It acts rapidly in increasing the heat of the body, inasmuch as the body is not only heated by the surrounding hot medium, but, when perspiration would afford relief, evaporation is impeded by the already moist atmosphere. Owing to these conditions, a high temperature of vapor bath is intolerable, while a dry hot-air bath may be taken at 212° Fahr. and higher with impunity. In a vapor bath of 120° Fahr., Fordyce found the pulse 145 after twenty minutes' stay. At a higher temperature the pulse becomes more frequent and smaller, and when the temperature reaches 170° Fahr., it can be borne but for a few moments without injury. The physiological effects of the hot vapor bath are congestion and redness of the skin, increase in frequency of the pulse, fullness of the head, oppression of the chest, arising from congestion of the lungs, and tendency to perspiration. Persons are often deceived by the seeming large quantity of perspiration on the skin, which is in great part only the condensation of vapor on the body. There is increase in the temperature of the body. Wiegand found that in a vapor bath of 106° Fahr. a thermometer placed in the mouth

rose from 99° to 102° Fahr. in five minutes, reached 104° Fahr. when the temperature of the bath was increased to 110° Fahr. These observations may not, however, be altogether accurate, as the hot vapor entering the mouth would influence the thermometer, and, placed in the axilla, it does not mark so great a change. But that the temperature of the body is decidedly increased is undoubted, and it is from this fact that the body so well tolerates the sudden transition from hot vapor to a cool shower bath. The change is grateful and soothing, and is followed by copious perspiration under favorable conditions.

RUSSIAN BATH.

This is but a form of the hot vapor bath. Under various forms it is used by all the inhabitants of Northern Europe — the Germans, Swedes, Norwegians, Russians, and, we are told, by the Indians of this continent. As employed in this country, it consists of antechambers, or dressing rooms, warmed from 70° to 95° Fahr., and the bath chamber. The latter is constructed of wood, and on one side of the room are rows of benches, usually three in number, one above the other. The temperature of the bath is according to the elevation of the bench. On the lower it is about 96° Fahr.,

and on the upper one it may be as high as 160° Fahr. The bather disrobes in the anteroom, and then, lightly covered, enters the bath. He first reclines on the lower shelf, then on the middle, next on the upper, remaining five, or ten, or fifteen minutes on each, the time varying as the person is accustomed to the bath. At certain stages of this process, when the skin is red and the body very hot, the person is taken to a side room and showered with cool, or even cold water. The skin being so intensely hot, the sensation is very agreeable, and no danger need be apprehended, provided the contact of cold be brief. In Russia the attendant also rubs the body vigorously with various irritating and cleansing substances, such as the inner bark of the lime-tree, previously soaked in soap-suds, a hempen wisp, bran and soap-suds, or flannel cloths, the selection being adapted to the condition of the patient. The body is also kneaded, and the various joints rubbed and twisted till they are perfectly supple. The hot vapor is usually admitted to the room from coils of steam pipes, but in Russia it is produced by throwing water on red-hot shot or stones; and there the equivalent for the cold shower often consists in running out into the open air and rolling in the snow, immediately returning, however, to the hot vapor room.

The duration of the bath for those not habituated is about fifteen minutes, but, after becoming accustomed to it, it may be prolonged to a half hour, or even an hour. After the bath the person retires to an adjoining room, and remains till cool, usually partaking of some warm drink. If, however, copious perspiration is desirable, the patient is wrapped in blankets and reclines on a couch, where he remains for some time.

HOT-AIR BATH.

In the hot-air bath the body is surrounded by a medium which, although it tends to increase its heat, presents at the same time the best conditions for conveying the heat away. The skin is stimulated to increased activity, and perspiration exudes from every pore; but it is immediately converted into vapor, which, in the change, absorbs enormous quantities of heat, and thus the body remains about the normal temperature. Experiment has proved that a person may remain seven minutes in dry air at 210° Fahr., and the body heat will not rise more than one degree in temperature. In the hot-air bath the loss by evaporation depends more on the length of time passed in it than the temperature. Ten minutes passed in a hot-air bath of 122° Fahr. and one of 212° Fahr. give rise to the same loss by

evaporation, and this in constant proportion. The difference between the toleration of a hot-vapor bath and a hot-air bath has already been noticed; while in the one we cannot endure a heat above 160° or 170° Fahr., in the other we can readily remain for some time after it passes the point of boiling water. It is related that the workmen of the sculptor, Sir F. Chantrey, were in the habit of entering a furnace in which moulds were dried, when the floor was red-hot and the thermometer stood at 350° Fahr.

Chabert, the fire king, frequently entered an oven at a temperature of from 400° to 600° Fahr. The physiological effects of hot air are somewhat as follows: On entering a bath of 160° Fahr., persons not accustomed to it usually experience a slight smarting and itching of the entire body. The pulse at first small and frequent, respiration is impeded, and there is a feeling of constriction about the forehead. After some moments the pulse becomes fuller, but still increased in frequency, and the temporal arteries throb. The skin feels hot, and there is a pungent, burning sensation about the nostrils. A copious perspiration covers the body, and sometimes the mouth is dry. The immediate after-effect of a hot-air bath is depressing, though when properly used it may prove tonic.

THE TURKISH BATH.

This is the form of hot-air bath in general use both in this country and Europe. It consists of four apartments: First, the undressing-room, at a temperature of about 80° Fahr. Here you disrobe, receive a light gown, and place your foot in sandals with wooden soles. Leaving this room the tepidarium is entered; this is a chamber usually about ten feet square and nine feet high, the floor of slate or marble and the walls of tile. Within this apartment are conches, on which you recline, usually remaining fifteen minutes; temperature of this room 120° Fahr. From the tepidarium you are conducted into the shampooing-room, of larger dimensions; temperature about the same. In the center of this chamber is an elevated marble table, on which you place yourself, and every portion of the body is rubbed thoroughly and kneaded by the bath attendant. From this room you enter the caldarium and recline on a couch; this apartment is similar in size and construction to the tepidarium, but the temperature is 176° Fahr., and the walls are burning to the touch. Here you remain for ten minutes, the perspiration breaking forth from every portion of the body, and a pungent, burning sensation being felt about the nostrils. Then you are

again taken to the shampooing-room, where you are douched with water of about 98° Fahr., and rubbed with wisps of sea grass or hemp, then douched again. The attendant then takes a wooden strigil of the antique pattern, and scrapes the body and extremities; next you are showered with water of 90° Fahr., then douched with water of 70° Fahr., the latter giving considerable shock and terminating the bath. You are then conducted to the dressing-room, where, after being thoroughly dried, you recline for some time on a couch, enjoying the pleasurable "*dolce farniente*" condition in which you find yourself. The system is in a state of lassitude with a pleasant inclination to repose, unaccompanied, however, by the slightest sensation of weariness or fatigue. During the entire process the pulse has ranged as high as sixty beats per minute above the normal standard; and considerable skill has been required on the part of the attendant in adjusting the cooling douches so as to leave you at the close with the body cooled to the natural temperature.

The Turkish bath in the Orient is the same as that described, excepting that the chambers are not heated so high; the coldarium not being above 105° Fahr. For the purpose of the bath in health this temperature is preferable.

In Persia, India and Egypt, the baths are similar to those of Turkey ; and it seems that in countries of a southern latitude, preference is always given to the hot-air bath, while in northern countries the hot-vapor bath is most in vogue. As a therapeutic agent, the Russian and Turkish baths are applicable to chronic skin-diseases of the dry kind, and all chronic diseases in which it is desirable to stimulate the functions of the skin and produce active elimination, as gout, rheumatism, albuminuria, diabetes, torpid liver, etc. ; care, however, must be used in the selection of cases ; and the feeble, or those suffering from organic diseases of the heart or lungs, should not be subjected to the excitement of these baths.

THE DOUCHE.

This is an arrangement for projecting a stream of water on any part of the body at will. It is an exceedingly active agent, stimulating the blood vessels, nerves, and lymphatics of the part to which it is applied, and, through the nervous system, affecting the entire organism. It may be used of tepid, warm, or hot water, the effects varying in degree according to the temperature. The cold douche is seldom employed, except when the surface of the skin has been artificially overheated. Douches are differently named, according to the

mode of projecting the water. The ordinary shower bath is a descending douche. An ascending douche, frequently employed in diseases of the vagina, uterus, and rectum is formed, by an elastic India-rubber tubing, of convenient length, attached to a reservoir of tepid water, and terminated by metal tips, which are perforated with many holes, or have but a single orifice according to the effect desired.

The force of the column of water for the uterine or rectal douche should be within the following limits: For the uterus from two to six feet pressure; for the rectum from two and a half to ten feet. The temperature may range from 82° to 92° Fahr., though in some cases it may be as high as 98° Fahr. The fan douche is a metal tip, spreading out like an ordinary fan, with the perforations at the circumference of the fan.

The ring douche is a cylinder formed of coiled pipes rising one above the other to the height of six feet, and about two and a half feet in diameter. These pipes are all perforated on the inside, and, when the patient is within and the water turned on, he is showered from every point of the circumference.

The universal douche is a similar contrivance, by which the person is showered from every direction, above, below, and on all sides.

The spout bath is a douche of great power. It is formed by an orifice of from one to two and a half inches in diameter, from which the water is projected, over and downward from a height of five or six feet. The patient, usually reclining on a slab, places himself under this stream of water and permits it to flow on the diseased part.

THE SITZ BATH.

This is a bath in which the thighs and middle portions of the body only are immersed, in other words, the person sits down in the water. It may be cold, warm or hot, and acts according to the temperature. The warm Sitz Bath produces relaxation of the tissues of the pelvis and relieves irritation, thus giving relief in stricture of the urethra, nephritic colic, amenorrhœa and dismenorrhœa. The cold or hot Sitz Bath should be employed with caution.

The Foot Bath has the effects of the warm or hot bath, according to the temperature, though in a modified degree. This distinction, however, should be made: the primary action of the hot Foot Bath, by the turgescence of the blood vessels of the feet, relieves slight engorgements in other parts of the body, especially when the head is the seat of the engorgement.

MINERAL MUD BATH.

This bath consists of mineral mud taken from the marshy ground about the source of the Spring. This mud, having been previously thoroughly dried, is placed in a large vat, and mingled with hot mineral water till of a plastic consistency. The patient immerses himself in this hot mineral mud, varying in temperature from 85° to 100° Fahr., and remains from one to several hours. He then passes from this vat to an adjoining warm water bath, where he is cleansed, thoroughly rubbed and dried.

Although of recent introduction in this country, this bath is of ancient date, having been described by Pliny and Galen. The effect of the bath is to produce a lively excitation of the skin, followed by free perspiration. When the baths have been continued for some time, miliary and erythematous eruptions sometimes occur on the surface of the skin, unaccompanied, however, as a rule, by the feverish conditions which present in the eruptions from prolonged warm or hot bathing.

This kind of bath is chiefly employed in diseases of the skin, chronic rheumatism, and affections of the joints, such as engorgements, contractions, and concretions. The good results of these baths

abroad, in diseases of this nature, are attributed by the best authorities entirely to the external and topical application of heat, and the irritation produced by the friction of the mud. No heed is given to the supposed absorption of the chemical constituents.

MEDICATED BATHS.

All baths of Mineral Spring Water, containing considerable mineral constituents, may be placed in this class; also those baths of ordinary water in which medicines are dissolved. The substances most frequently introduced are alkaline carbonates, with a view of imitating the baths of alkaline Mineral Waters—common salt producing a bath somewhat resembling that of Saline Waters; sulphuret of sodium forming a bath similar to that of Sulphur Waters. Baths of the fumes of various medicines, termed fumigators, are also used; of these, those of sulphur and mercury are most frequently employed.

The person to be subjected to this process is seated on a stool, within a close box, the head only projecting from an aperture. The fumes are introduced beneath the stool, and the body is thus enveloped in an atmosphere highly charged with the vapor of medicinal substances.

CHAPTER VIII.

SPECIAL ADVICE TO INVALIDS.

INVALIDS visiting Watering Places are very often induced to take the *ipse dixit* of hotel and boarding-house keepers, in reference to bathing and drinking the various Mineral Waters of various Watering Places. It is natural for strangers to inquire of those whom they know have lived at these places for a great length of time, and whom they deem competent to give them information. This information may answer for those in health, but very improper for those laboring under disease. No one can give advice to an invalid, except they know what the condition of the person is, as to constitution and disease, at the time they seek advice. These benevolent and kind-hearted boarding-house keepers are not aware of what a perilous condition they are placing their guests in, who are laboring under chronic disease. And how absurd it would be for one unacquainted with the delicate and complicated structure of a watch, to undertake to repair it, or even to give advice in reference to the internal derangement. But this advice, although

not half as absurd, by the ignorant pretender of the structure of the watch, would be far greater in reference to the delicate and complicated structure of the human body. After medical men have studied for years anatomy, physiology and pathology, they yet find it very difficult in many cases to form a correct diagnosis, especially in complicated diseases of a chronic character. Take for instance the various diseases of the heart and lungs; some are just beginning to manifest themselves—tubercular disease, or consumption, especially. All Mineral Waters are considered injurious for that disease. How important is it to the invalid then to know at once whether he should remain at this or that Watering Place. It is at this stage of the disease also, that it is amenable to treatment. And how important the diagnosis. And then again in diseases of the heart in reference to the temperature of the bath, many a valuable life has been sacrificed to improper bathing. If the well-meaning landlord knew the responsibility he was assuming in giving advice to his guest, he would shudder at his own temerity, and abandon at once such impropriety. He would tell his guest that if he had any disease, or thought he had, to consult one of the medical men of the place, who had made disease a life study, and were well

prepared, from their great experience with the Mineral Waters and baths, to give them advice that, if they would follow, would place them on the sure road to recovery.

Sharon Springs has three resident physicians, all regular graduates of incorporated medical colleges, who are keeping up with the rapid advance of medical literature, by taking medical journals, and purchasing new medical books, and who have been settled here for a score of years or more, and who are better prepared to give advice than the most eminent city physician, for the reason that they have made it a life study, and have witnessed the effects of the air, water, baths, etc., on those under their immediate supervision. I am frequently consulted by invalids who have been taking the Mineral Waters and baths by the advice of their would-be friend, for one or two weeks, and who had given up all hope of being benefited at Sharon. I would generally find them feverish, excited, with a full and hard pulse, and loaded tongue, and who had worse than wasted two weeks of valuable time; these persons were required to stop the use of the Mineral Water and baths for a day or two and take a cooling cathartic medicine, which in a few days enabled them to resume the proper treatment, with gratifying suc

cess. In this way great injustice is done to Mineral Waters, and by those who have the best intentions.





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